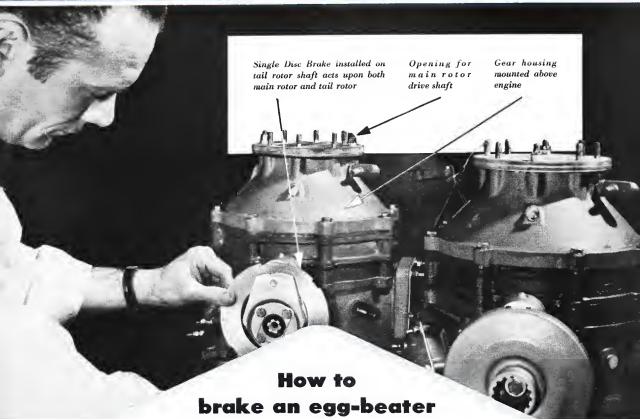


AVIATION WEEK

A MCGRAW-HILL PUBLICATION

JUNE 27, 1949



To prevent the main rotor and tail rotor from windmilling and to provide sure, smooth action and controlled deceleration necessary to prevent damaging torque stress loadings on rotor assemblies, the Bell 47-D helicopter is equipped with the new Goodyear Single Disc hydraulic rotor brake.

This new safety device for helicopters is an adaptation of the famous

Goodyear Single Disc aircraft brake — the landing gear brake preferred by many aircraft manufacturers and operators for safe, sure stopping power!

Other air-proved Goodyear products used on the Bell 47-D are Goodyear airplane tires, tubes, wheels, brakes and fan belts. For information about these, or other Goodyear products, write:

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Akron 16, Ohio, or Los Angeles
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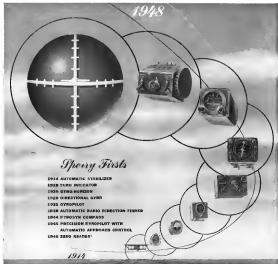
60 years of pioneering over-
looks nothing that science or skill
can contribute to make fine bear-
ings better.



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BALL BEARINGS**

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ROBUST CONSTRUCTION



ZERO reader—ANOTHER SPERRY "FIRST"

Max's first airplane instrument for automatic flight was the Automatic Stabilizer introduced by Sperry in 1914. Down through the years, Sperry has developed—through pioneering research and engineering—many added "firsts" in aviation equipment.

Now, Sperry introduces the zero reader—the only external system approaching the performance of

stabilized automatic flight control... another progressive step toward development of all-weather operations.

Developed by Sperry with the cooperation and encouragement of All-Weather Flying Division, USAF and the Air Transport Association, the ZERO READER is an example of Sperry's never-ending search for new ways to improve flying techniques.



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NEWS SIDELIGHTS

Military Changes

On the military front, the House Committee recently made a vast increase in the Secretary of Defense's control over the services to promote uniformity. The National Military Establishment would be converted into a classical executive department, "The Department of Defense." Legislation copying out the proposed military reorganization, with some modifications, has been passed by the Senate (Army news writer, June 6).

House Armed Services Committee's chairman, Rep. Carl Vinson (D., Ga.), was set to propose it. But immediately after the legislation giving the President new reorganizing authority was passed, Vinson announced changes in the conference session starting June 28. It was then clear that the President could accomplish the military reorganization without the approval of the House Armed Services Committee. Vinson's only chance now to defeat it is to whip up enough votes in the House floor to veto the President's proposal.

Tactical Demand

With the Air Force to make serious use of its efforts to build up its tactical air power during the next fiscal year, Army is getting strong pressure on USAF to get adequate support for its ground troops. USAF has been relying on the vote of Army base, Gen. Omar Bradley for the 1944 increase against the Navy in Joint Chiefs of Staff battles.

Under USAF's tactical air power for Army support it may lose the derivative Army vote in JCS. Both the Lockheed P-80 and Republic P-48 have shown extremely well in some way of dive-bombing and striking of ground targets, but they lack the under fire required for an effective ground support plane that must remain in the target area for some time to deliver sustained attacks. Transcendent firepower now possible in attack planes has the Army looking for USAF procurement of a modern attack plane.

Research Policy

Military and industry leaders are alarmed at the current Congressional trend toward heavy slanting of research and development funds. Congress seems to feel that the big need for aviation research and development ended with the war and that all agencies concerned can count along on a wartime backlog of research. Among the aviation groups, Na-

Watch Sidelights

With the loss to fly to him Dr. Clark M. Latham, newly appointed chairman of the Research and Development Board's general studies committee begins surveying the military machine program. Most observers outside the committee program need a good overhauled and reevaluation, and that M. Latham is a good choice to do the job.

One of the big problems in working out a number of wartime made research projects that still continue even though technical progress has indicated they no longer offer much potential. Typical of these is the program on missile propulsion, for torpedoes.

Also noted is a more thorough consideration of the missile program now being conducted by U. S. Air Force, Navy's Bureau of Aeronautics and Bureau of Ordnance and the Army's Ordnance Department.

holding out the two up in Washington," the article starts in its opening paragraph. "The industry is in part, as an undoubted weak ally by the industry. He supports the industry with his team, providing personnel for executives but none for himself. He gets subordinated wages, money, and credit, and the industry is trying to let him away for unknown—according to 'Associated Press'."

B-36 Export

Washington also has been combining whether Charles A. Lindbergh will be one of the witnesses called when the House Armed Services Committee opens its investigation into the Convair B-36 and other "convoy" matters.

Lindbergh actually spent some time at Convair's B-1. Watch dinner in his capacity in special assignment to USAF Chief of Staff, Gen. Hoyt H. Vandenberg. While at B-1, Lindbergh flew a copy of the B-36 prototype, equipped with four Allison turbojet engines and on Pratt & Whitney Wasp Major piston engines.

Convair's test pilot B. A. Fackler flew on the left hand seat on the B-36 test hop during which considerable time was spent above 42,000 ft. Lindbergh is now inspecting USAF tests in Germany.

Economy Drive

The move to slash military funds (Aviation Week, June 14) is in full swing in the Senate last week as the Air Appropriations Committee opened hearings on the 1950 fiscal year budget for the services.

Sen. Edgar Thomas (D., Okla.), chairman of the armed services appropriations subcommittee, called for an overall \$1 billion slash in the \$2.6 billion military allocation voted by the House. He indicated the major reduction in Air Force funds, proposing a 40-group program for the coming year, instead of the 57 group program approved by the House and the 46-group program recommended by the subcommittee.

As power advocates of the subcommittee, however, can be counted on to fight any sharp cutback in USAF funds. These include Sen. Bernard M. Baruch (D., S. C.), Pat McCarran (D., Nev.), Louis B. Nichols (D., Ala.), Styles Bridges (R., N. H.). The subcommittee appears set to drop the \$40 million approved by the House for the Navy's supercarrier. United States, since cancelled by the first Secretary Louis Johnson.

tional Advisory Committee for Aeronautics and Naval Aviation have taken the largest and most serious research field cuts.

U. S. Air Force also got a shock from the Budget Bureau on its research and development funds, both the fiscal 1950 budget and 1951. As a result, both USAF and Navy are having to see funds appropriated for other purposes, such as modifications, etc., to prevent critical research projects from drifting to the back of the line.

Since military leaders feel the need for aviation research and development during the next few years is much more acute than for large scale movement of military interests with a high rate of obsolescence.

Union Blast

Aeronautics' the aircraft wing come out by USAF's research department, first full blast at the air craft industry in ten solid pages of distributive charts and figures in the May issue. "Gold-plated performance" is the tag line, suggesting that to go on the industry for accepting too much and picking up gold bars in government profits and equipment.

The main bodies of the plane construction is not producing planes but

PLANE FAX

A page of service tips for private flyers and fixed-base operators

Take-off tips that cut down accidents



Don't retard your landing gear too soon

Sounds elementary... but you need more runway to take off on hot summer days because of the lighter atmosphere. So be sure you're not bracing before you flip up the gear. To keep your landing gear and all control surfaces running smoothly, use RPM Aviation Grease No. 1. It reduces friction... sticks to exposed parts at high speed... stays put at all temperatures.

"We take better care of your plane"

Tie down loose equipment before working up

Good pre-take-off up to it faster down here, accidents and safety belts securely. They can be serious hazards, jamming the controls and causing injury to you and your plane during takeoff.

Dispersed when loose in a plane—



Take off with a clean engine

Hidden dangers to safe flying are the power-sucking gear deposits that can form in your engine when you use ordinary aviation oils. For deposits will clog engine parts... they cause stuck valves and rings, and even loading. In fact, the RPM Aviation Oil cleans engines as it lubricates. It contains a detergent that gently loosens and removes carbon, soot, and sludge... and prevents new deposits from forming. This special chemical actually disperses any foreign particles, keeps them from building up on an engine's main parts. So for a clean engine and peak performance on any flight, stick to "RPM."

"Fished" your plane while testing

Failure to stem on the test strip is a common cause of ground collisions. Be sure you have good visibility at all times. Remember... A high percentage of all aircraft accidents occur on the ground.

CHEVRON
AVIATION
GASOLINE

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NEWS DIGEST

DOMESTIC

J. Charles Wood, Jr., accepted the retirement proposal of his employment contract with Fairchild Eagle & Jet plane Corp. This has been one of the most recent in Sherrill Fairchild's fight as the corporation's management. Sherrill Fairchild hailed Wood's action as a victory, management and it reduced the price battle in the July 61 board meeting to the single question of whether stockholders wanted to "return to the Sherrill Fairchild era."

Bill Aircraft Corp. was arrested by United Auto Workers in forcing the strike at Ford's plant in an effort to discontinue assembly stockholders and get them to sell their holdings to Ford Truck Corp. The strike continued last week with the union voting for an unannounced wage increase. Bill Aircraft and the union would average 15 cents an hour, putting average pay at \$1.75 per hour.

Personal aircraft experts in May for new components regarding to Aircraft Industries Inc. listed 57 planes valued at \$241,450. In pending month, total for same companies were 60 planes and \$242,082. Ford and General each reported 13 planes.

CAL received only 37 formal applications from large business aircraft for exemption from the May 31 rules (Aircraft WEEK, Apr. 35), in advance of last week's filing deadline. At one time 111 carriers held letters of registration.

An Outstanding Candidate in national appointment of Stephen T. Early, Undersecretary of Defense at the state representation on the committee of the National Military Establishment. Previously, Mr. Early had been an Air Force chief of staff.

John & Han Co., Philadelphia chemical manufacturing, has been given an Army Ordnance Department contract to organize and operate a laboratory for basic research and development in rocket and jet propulsion.

Honorary degrees were awarded Glenn L. Martin (doctor of science) by the University of Southern California, Hugh L. Dryden (doctor of science) by Bowdoin College, and Charles Young (doctor of science) by West Virginia University.

FOREIGN

Sardar Hardt Singh Mehta of India was elected president of International Civil Aviation Organization's third assembly, new meeting in Montreal.

INDUSTRY OBSERVER

► Pratt & Whitney's VDT power plant originally slated for installation in the B-10C, a tractor version of the giant Convair bomber, and the B-54 will now probably be used in the production version of the Convair C-59, transport counterpart of the B-54. Taking off at the VDT performance about 40,000 ft. killed the B-54C and B-54C-100, but the 20 percent fuel saving over a given range or a 20 percent range increase using full fuel equally would make a strong attraction for a long-range transport that would operate well below 40,000 ft.

► Latest news on the B-36 situation is that the Air Force is now seriously considering proposals to sweep built the outer wing panels (Aircraft WEEK, Mar. 14). This change would raise greatest Mach limitation of the big bomber. USAF jet research put a limitation of Mach 66 on the B-36, but it has been down to Mach 65 without encountering any compressibility problems. Sweep back of the outer wing panels poses a simple construction problem and would raise the Mach limitation to about 75. Above 40,000 ft. this increase in Mach limitation would permit lifting the speed ceiling from 435 mph to 475 mph. USAF has already indicated it hopes eventually to get the B-36 up to a performance peak of 500 mph at 50,000 ft.

► McDonnell Aircraft Corp., St. Louis, probably will get a U. S. Air Force contract order for its F-56 "Voodoo" twin jet fighter in late 1959. F-56 is perhaps the longest ranged (1100 miles) of currently flying jet fighters. USAF has about given up on the McDonnell XF-58 Phantom fighter considering that it has a high degree of jet lift is required to thrust the barrel-shaped jet fighter onto the engine extended below the forward wing's belly.

► Grumman Panther (P-7) is now going into squadron service with the Navy at San Diego. Two Panthers were lost recently in forced landings after their run short of fuel. One crashed in Glens on a firing flight to California and the other after a test flight off San Diego. Grumman will complete its Navy production contract for Panther (P-7) planes powered fighters in July. Production deliveries on the Guardian (AF-1) are scheduled to begin late this year.

► Boeing Stratocruiser sales prospects now include Ale Pines, KLM and Swissair according to Fred B. Collins, Boeing vice president-sales manager. Collins has just returned from a European sales tour. Meanwhile, the American Airlines took delivery of its sixth Stratocruiser at Seattle. Previously, deliveries were made at Portland, Ore., to escape a Washington state sales tax on aircraft that has just been enacted.

► Polish Airlines (LOT) is considering replacing its 18 DC-3s with Russian equipment. Observers report the Polish equipment replacement problem is becoming acute.

► Ethyl Corp. is conducting tests at the University of Kentucky aimed at producing a scavenger to combat effect of lead in high octane fuel. Scavenger now available appears only with the tank that some cylinders are cleaned while others remain fouled. Ethyl hopes to get a scavenger that will remove the lead in gasoline films.

► Shell Oil is scheduled to get from the U. S. Air Force an A-26F containing an Allison J-33 turboprop installed in the tail in addition to its two normal piston engines. Shell will use the plane for experimental research on jet fuels and lubricants.

► Pullen Airplane is now well along the road toward certification by the Civil Aeronautics Administration after a long, drawn-out series of satisfactory CAA requirements for the first commercial approval of a portable airplane. Airplane designer Robert Arthur Pullen, Jr., is testing the tests at Burbank, Conn.

► NACA is making tests for the Navy on Korea helicopter rotor system at Langley Field near New River. Navy plans to buy several Korea 190 helicopters for evaluation testing by Navy and Marine pilots.

CAA Plans \$213 Million Airways Program

Three-year development effort will fulfill RTCA interim phase outline.

By Robert Hots

Civil Aeronautics Administration has blueprinting a three year program for spending \$213 million on electronic airways equipment. This represents CAA's part in the joint civil-military program for establishing an all-weather airway and traffic control system for the United States and the main central effort to its foreign possessions.

The CAA's new equipment program involves \$300,000,000 in the fiscal 1959 appropriations still pending before Congress plus \$100,000,000 to be requested in the fiscal 1959 and 1962 CAA budgets. These funds will be used to purchase electronic equipment as indicated in the adjoining table. This equipment will be used to operate the interim phase of the all-weather system program as outlined in the SC 31 report of the Radio Technical Commission for Aeronautics.

■ **Home's Plans**—Details on CAA's own airway planning was requested by *Aviation Week* by Charles F. Home, newly appointed head of the CAA Office of Federal Airways (Aviation Week, June 17, 1968). Home was named in the airways unit in CAA Administrator DeLoe W. Rostad to work the new airways development program.

Home came to CAA after a career in Navy communications and electronics during both to 1955. During the war he was staff communications officer for Admiral Halsey in the South Pacific and later for Admiral Kefauver. Home was awarded the top electronic honors in the Central Pacific. After the war Home was Deputy Director of Naval Communications and he joined CAA last year as Rostad's special adviser on electronics.

Home indicated that if the appropriations were forthcoming according to schedule it would be possible to have the interim system operating for air-borne, private pilot and military aircraft by the summer of 1970-71. Status of the new system equipment installation program as of June 1 is shown in table on opposite page.

Airways Progress Report

Facility	Total Programmed	
	In Operation as of 5/1/68	Through Fiscal Year 1972
VOR (beam range)	294	406
Instrumented Landing Systems	92	320
High Intensity Approach Lights	1	320
Airport Surveillance Radar	1	150
Proximity Approach Radar	1	82
Distance Measuring Equipment	1	793
AID Towers	147	201
ATC Control	16	18
Airways Communications	356	418

Implementation Schedule

Classification	Fiscal Year 1959	1960	1962
Base Instrument Air Terminal Area	227	110	123
Class D	0	9	117
Class C	0	79	51
Class B	0	10	68
Class A	35	64	81
Total	245	264	440

The planned near-range installation program is about three-quarters complete. There are indications that considerable additional work may be required on the own range to improve its accuracy characteristics.

■ **GCRA Program**—ILS is now in operation at 32 airports. First installation of traffic control search radar and navigation beam approach radar (GCRA) specifically designed for civil airport use will be made before the end of 1969.

Major drive during the first half of this year will be concentrated on push-up, distance measuring equipment (DME) out of the developmental stage into standardized production. International agreement on DME specifications was obtained at the recent ICAO communications meeting in Montreal. U.S. developmental DME equipment manufactured by Raytheon Electronics Corp. and Federal Telecommunications Laboratories is now being modified to meet the international specifications.

■ **DME Tests**—In the fall a joint CAA-Air Force Navy program will begin to give the modified airborne DME equip-

ment a thorough service testing on the three primary DME stations now in operation at Wright Field, Indianapolis and Palmer Field, Md.

These tests are expected to provide data for evaluation of the airborne equipment and for writing of detailed production specifications for electronic manufacturers. Production quantities of airborne DME equipment will probably not be available to airlines and military services until some time in 1970.

■ **Repeater Systems**—DME ground stations, of which 750 are planned in the CAA program, will be located at the sites of all airports and at the ends of instrument landing runways. These repeater DME installations will eventually replace the ILS 75 megacycle master beacons to indicate an approaching plane's distance from the runway's end.

Some work is expected to be done on lightweight airborne DME equipment for small aircraft-type planes but the cost and technical problems involved now indicate a limited market for this equipment.

■ **System Planning**—Home indicated that basic CAA planning for the new

CAA Airways Program

Type of Facility	Total CAA equipment under development through fiscal year 1968 21 programs, number of facilities	Authorized through fiscal year 1968, number of facilities	Total 1959 program		Balance figure year-end fiscal years 1951 and 1952	
			Number of facilities	Amount	Number of facilities	Amount
Geographical Unit Status						
VOR-ILS equipment (includes LF licensed)	126	117	18	\$4,264,800	145	\$21,540,710
High intensity approach lights	126	117	13	1,111,410	208	47,710,132
Distance measuring equipment	725	16	508	17,947,720	110	2,514,670
Proximity approach radar	15	15	13	3,940,800	14	17,611,172
Airport surveillance radar	120	25	19	4,312,800	101	23,891,967
Secondary radar	150	—	—	—	190	28,400,800
VHF-ADF equipment	150	—	44	461,792	106	1,797,118
VHF-weather	150	—	—	—	—	—
Marine air intercept	1	1	30	442,300	31	1,099,944
Airport class air traffic	1	—	—	—	30	4,111,175
Approach control during descent	1	4	15	401,000	11	1,151,300
Approach control during descent	1	—	—	—	—	—
Alone						
VHF-ILS equipment (includes LF licensed)	16	7	4	940,000	8	931,230
High intensity approach lights	16	—	—	—	36	3,986,472
Distance measuring equipment	23	—	11	461,800	11	591,267
Proximity approach radar	13	—	11	115,400	3	2,029,219
Airport surveillance radar	13	4	3	570,800	2	2,997,997
Secondary radar	13	—	—	—	12	1,197,993
VHF-ADF equipment	13	—	—	—	12	1,141,141
VHF-weather	6	—	—	—	3	421,305
Marine air intercept	—	—	—	—	—	—
Airport class air traffic	—	—	—	—	—	—
Approach control during descent	—	—	—	—	—	—
Facility type						
VOR-ILS equipment (includes LF licensed)	8	1	—	—	7	1,393,731
High intensity approach lights	8	—	—	—	8	1,346,231
Distance measuring equipment	15	—	—	—	11	1,286,794
Proximity approach radar	1	—	—	—	2	1,178,581
Airport surveillance radar	5	1	—	—	7	1,421,424
Secondary radar	4	—	—	—	12	1,286,732
VHF-ADF equipment	4	—	—	—	4	176,167
VHF-weather	1	—	—	—	—	—
Marine air intercept	1	5	—	—	4	107,784
Airport class air traffic	—	—	—	—	—	—
Approach control during descent	—	—	—	—	—	—
Combined area						
VOR-ILS equipment (includes LF licensed)	6	—	—	—	6	5,117,474
High intensity approach lights	6	—	—	—	7	7,024,784
Distance measuring equipment	1	—	—	—	1	1,151,186
Proximity approach radar	1	—	—	—	1	413,389
Airport surveillance radar	1	—	—	—	1	948,004
Secondary radar	1	—	—	—	1	1,151,151
VHF-ADF equipment	1	—	—	—	1	50,440
VHF-weather	1	—	—	—	1	395,596
Marine air intercept	1	—	—	—	—	—
Airport class air traffic	1	—	—	—	—	—
Approach control during descent	1	—	—	—	—	—
Total			330	\$445,263	508	\$2,796,480

ments system was aimed at getting more track than completely equipped and operating first rather than installing all of a certain type of equipment all over the country and then moving on to another phase of equipment.

The planning aims at relieving the bad weather traffic pressure and congestion at major air terminals first and then working back through the airway system to airports where lower traffic densities make operational problems less severe.

To facilitate this priority program CAA has drawn up an interim airport classification.

■ **Base instrument terminal area** is as report where instrument approaches can be made using no more accurate facilities such as own range and DME.

■ **Class D area** is an airport that has its own own range, DME and an instrument landing system (ILS) plus high accuracy approach lights.

■ **Class C area** has all the Class D equipment plus a traffic control tower.

■ **Class B area** is characterized by the addition of traffic control search radar to the above facilities.

■ **Class A area** has personnel hours spent, radar (GCRA) in addition to everything provided in a Class B area.

Brazilian Crash

(McGraw-Hill World News)

BOEING 747 (ANDER-41) 25 about a Brazilian Air Force C-47 crash when the craft crashed into a mountain in southern Brazil June 6, as one of the 800 men on board.

The plane struck Camanducaia Peak in the state of Santa Catarina and burned, just after the pilot had indicated that he was flying an instrument.

All 800 men were members of the Brazilian Air Force. The 30 passengers were all members of the armed forces except two women and two children.



Connie Modified For Radar Duty

Lockheed-built Navy PO-1W makes its first test flight; designed to meet new requirement in search planes.

Belonging with radars and building with antenna spars, the Lockheed Constellation has joined the Navy's rapidly growing stable of radar picket planes. The specially-modified Constellation is called the PO-1W (P for patrol, O for Lockheed and W for war-time).

Just PO-1W as an experimental aircraft for two made its initial test flight at Burbank, Calif., last week. Second is expected to be flying shortly after stability problems caused by the bulging radars are thoroughly explored.

► **New Requirement**—The PO-1W is designed to fill a new Navy requirement for a combination long range radar picket plane and airborne combat communications aircraft. As such the PO-1W can be used for four principal three tasks.

► **Radar Picket Plane**—The picket plane is far superior to the dispatch rider radar picket ships now in use since it can curve the search radar in an altitude above the line of sight (altitude) that least coverage from surface radar sets are encountered. The Constellation can provide 50 degree coverage using radar altitudes as low as 10,000 feet. Radar, under the belly and installed in a specially elevated nose and the tail. The wings of the Constellation can be added to radar range to provide continuously early warning of either air attack or submarine activity.

With the remaining aspect of jet fighters and attack planes, the Navy has an urgent need for extending its radar range beyond the 100 miles of the former radar.

► **Anti-Submarine Patrol Plane**—The belly radar of the PO-1W is a special type developed by the Navy for use

against the "blackout" type submarine which exposes only a small listening device on the surface. Again the range of the Constellation is important since it can cover large areas in search mission and can carry more powerful radar than can be crammed into a smaller plane.

► **Radar Hunt**—The PO-1W will be equipped with radar detection equipment and countermeasure equipment to see enemy radar stations. Role of level planes in locating enemy radar installations and completing their operational frequencies previously in pursuit.

► **Search Communications Center**—The VLF radar requires an airborne radio station to maintain ground to sea communications over long distances. The PO-1W can function in that capacity. It can also, by virtue of information obtained from its search radar, function as a search radar center for fighter control against enemy air attack or against submarine activity.

The Navy has three other models of radar picket and search planes—the Grumman TBM modified with a triple tail fin to stabilize the "guppy" belly radars, the Grumman AP-15 a later development of the TBM series and the Douglas A-1W which also has a triple tail in conventional belly radars. However these three planes are powered by a single engine and have a relatively limited range. They are designed for operations from a carrier on search missions against submarines at extreme altitudes and surface ships.

► **Changed Plans**—In contrast the PO-1W is a four-engine, high speed aircraft and is capable of carrying much more powerful radar and countermeasure equipment. Navy originally planned to use the two Lockheed Constellation for this type of work but later opened the project to competition that answered by the Constellation and the Douglas DC-6.

Navy preferred to buy off the shelf commercial transports for experience reasons in this field to save money. Lockheed was the competitive primarily because of a much lower price.

The two Lockheed PO-1Ws are strictly experimental. Since the Navy is continuing into a broad new field, it is likely that any future requirements for a tactical production line aircraft of this type will be relatively slow in development.

Bonanza Awarded Southwest Routes

Bonanza airlines has been awarded with qualifications the entire Reno-Phoenix route structure in the Civil Aeronautics Board's decision on California Nevada award.

The Nevada carrier was selected for a temporary certificate permitting it to engage in scheduled transportation of persons property and mail for three years between Reno, Nev., and Phoenix, Ariz., via the intermediate points Chinle, Chinle-Minden, Hawthorne, Tonopah, Death Valley, Las Vegas, Boulder City, Kingman and Phoenix.

Before certification becomes effective however, Bonanza must:

- Show sufficient financial resources to provide such transportation.
- Agree with TWA of joint route administration between Las Vegas, Boulder City, Kingman, Phoenix and Phoenix.
- Represent—Due factor doubling the line in front of Bonanza is that it has been successfully operating as a Nevada intrastate carrier between Reno and

Las Vegas since 1946. Initial service was three round-trips weekly which was gradually increased until 1949 when now scheduled daily was provided.

The carrier got more than it asked for in its original route proposal. CAB added far intermediate stops—Cannon City, Minn., Death Valley, Boulder City, Kingman, and Phoenix—while it took away only one, Needles, Calif.

Bonanza was out over Southwest Airways and American Airways, each of which has offered slightly different route proposals.

► **Reasons**—CAB listed three reasons for awarding the route to Bonanza:

- It has overcome many of the obstacles encountered in establishing a new air service.
- Sufficient private capital evidently is possessed by its president and directors and this can be used to pay for new equipment. It is estimated \$400,000 will be needed.
- Good will which its operations already have won should generate more traffic.

► **Independent** local organizations can best meet Bonanza's needs through contributions on the route's needs.

The board pointed out that TWA has only partially maintained service on its Las Vegas-Phoenix route since the end of the war, and said that TWA "has indicated its unwillingness to maintain schedules due to the current pattern of its route system in that area."

► **Timeline**—CAB recommended that TWA transfer its Las Vegas-Phoenix route to Bonanza. It heard from Arizona Airways' application for a Phoenix-Reno route on the grounds of inefficient financial resources to expand. It also rejected Southwest's Phoenix-Reno application, saying the carrier's fleet of 100 planes was needed to develop its present route structure.

It has with its award to Bonanza, the Board in a separate action allowed a petition by TWA, its leader in Phoenix-Las Vegas certificate to Arizona Airways.

Vought Sues UAW

The United Auto Workers (UAW) which has been engaged in a running battle with the International Association of Machinists (IATU) in the aerospace Vought Aircraft's Dallas production line, obtained lists of employees improperly from the company's files to sue in the UAW drive, according to a court action brought by Charles Vought.

The lawsuit's complaint sought return of the lists, allegedly furnished to UAW representatives by a former Charles Vought tabulating department employee, and asked an injunction to block the union's use of the names.



Safety wings for Stratocruiser at Los Angeles Airport was provided by replacing heavy wire fence at end of 6000 ft. runway with a wooden fence that is.



Lowered when the big new transport takes off its heels. Across the road, beyond the parking track, is a 2000 ft. closed stop in line with the runway.

Stratocruiser Certification Hit

Behrke says "Rube Goldberg" schemes are used at Los Angeles as plane does not meet CAB rules.

Changes that the Civil Aeronautics Administration changed its safety regulations to permit certification of the Boeing Stratocruiser have been made by David J. Behrke, president of the Air Line Pilots Assn. Behrke testified before the Senate Interstate and Foreign Commerce Committee group which is investigating the airline financial picture.

Behrke blamed CAA's regional ad monitoring of safety regulations for what he termed the many concessions to an airline made in certifying an airline transport. He said that because of the CAA's regional organization the safety picture was so confused that neither the CAA Administrator at Washington nor the regional administrators in the field could give a clear picture of what was going on in an safety regulations.

► **Changes Changes**—"Air safety regulations were created governing the construction of the new giant Boeing Stratocruiser," Behrke told the Senate group. "The plane is built and it is found that it will not meet federal regulations governing its engineering and performance in what happens—the regulations are changed to fit the plane,

instead of the plane fitting the regulations."

"This happens repeatedly. For example we recently inquired about the Boeing Stratocruiser to find out how things were going. We contacted the Administrator's CAA office. He didn't say so so many words, but what he obviously did was to check up with the regional director in Seattle and learn that the regional director had permitted the Boeing Stratocruiser to be licensed even though it could not meet present Civil Aeronautics Board production regulations requirements without permitting partial use of release procedure to assist the wheel landing when it brings the plane to a stop to conform to 'accidents and stop' runway lengths required as today's airports."

► **Little Devotion**—"Air safety regulations governing the engine manufacturing standards. Further, when inspection added an increase of horsepower to the engine which in turn added gross weight to the airplane. A selective center of gravity loading arrangement also paralleled selected gross weight. Apparently all this was done in one CAA region with Washington approval."

Beltsch presented an exhibit to show the extraordinary measures being taken at Los Angeles Airport in accordance with the Stratoscruiser Beltsch said that the Stratoscruiser requires a 7000-ft runway to meet current requirements of the transport category. Civil Air Regulations (the Federal Aviation Act, Los Angeles Municipal Airport is 6000 ft.)

Clear Skies To accommodate the Stratoscruiser in emergency, Beltsch said a 2000-ft strip has been cleared off the end of the 6000-ft runway. In addition, a heavy, new boundary fence has been installed at this interval's end by a light wooden fence, presumably because it would be less damage to a plane overrunning the runway.

Lately, according to Beltsch, agents were added to the board deputed to be used in connection with a highway traffic report that regulates automobile traffic on the road that lies between the runway end and the beginning of the 7000-ft emergency strip. Beltsch told the Senate group that this signal is operated by the airlines using the Stratoscruiser, since the CAA cannot have refused to accept responsibility for its operation.

• **Fatality:** Stratoscruiser take-off procedure, according to Beltsch, will involve flash and light to stop highway traffic, lower the lower fence, and then clear the Stratoscruiser for take-off. The same process will be repeated for landings, Beltsch said.

Other attempts to ease the Stratoscruiser main runway length include moving the highway below airport level and building a 750-ft wide bridge over the road to connect the runway with the emergency strip and to merge the highway through a tunnel.

• **Wants Beltsch's** cite this to show on the risk of confusion that this action is why an independent safety board is necessary.

Such a board would look at the situation and how could it run through but the following: "We recommend that all these other Government, Los Angeles Municipal Airport, new, long-term, schemes be abandoned and unless the City of Los Angeles can supply a runway sufficiently long and constructed as to permit the Boeing Stratoscruiser to operate safely, the airport must be closed to the Boeing until the City of Los Angeles supplies such a runway."

Copter Road Block

The Alaska Road Commission has issued a helicopter flight plan for Alaska to assist a road survey from Fairbanks to Mount McKinley Park, permitting agencies to enter a greater number of projects and eliminate communications, transportation and other problems.

Standard's Operating Record

	Los Angeles To New York	New York To Los Angeles	Chicago To New York	New York To Chicago
No. of Days No. of Flights Operated	No. of Days No. of Flights Operated	No. of Days No. of Flights Operated	No. of Days No. of Flights Operated	No. of Days No. of Flights Operated
1947				
July	13	14	15	5
August	9	10	15	9
September	12	14	16	9
October	18	11	15	9
November	7	2	10	4
December	11	7	15	8
1948				
January	9	10	8	9
February	6	10	7	9
March	10	7	5	7
April	15	11	14	14
May	30	19	19	19
June	21	21	14	16
July	27	22	20	19
August	24	25	17	17
September	16	15	16	12

CAB Orders Standard To Quit

Revokes nonstop registration letter and asks Justice Department to prosecute for alleged law violations.

In its most drastic action against unscheduled passenger service, the Civil Aeronautics Board last week ordered to quit Standard Airlines out of business.

CAB took the following action against Standard:

• **Revoked its letter of registration.**

• **Ordered Standard to cease its flights** as of June 1, 1948, as of transportation beginning 10 days from the date of the Board's order.

• **Required Department of Justice** to institute criminal proceedings against Standard under section 902 of the Civil Aeronautics Act. This section makes any person who knowingly or negligently violates the act of any requirement of the act of a civil aviation commission liable to a fine of \$500 for the first offense and up to \$1000 for any subsequent offense.

The Board charged that such drastic action against Standard was necessary because the airline's action in the past "constituted in fact no action short of a complete stop."

The Board charged that such drastic action was necessary because the airline's action in the past "constituted in fact no action short of a complete stop."

• **Directed DCIs—Standard Airlines** was one of the larger non-scheduled pas-

senger carriers with headquarters at Long Beach, Calif. It operated as DC-1 transport and employed 61 persons. Its offices included 1 Standard West, president; James Polignone, vice president; and Miss G. Weiss, secretary-treasurer.

The Board issued Standard a letter of registration as a large regular air carrier on Mar. 11, 1948, in accordance with section 262.1 of the Board's economic regulations.

CAB charged Standard with the following violations:

• **Conducting regular nonstop service** covered by the economic provisions of section 262.1. The Board found that Standard's operation since Mar. 11, 1948, between Los Angeles-New York and Chicago-New York, was of such frequency and regularity as to "constitute beyond all question all standards of law to regular air service."

The Board cited that Standard's operations between June 10, 1947, and Sept. 28, 1948, were also more frequent than contemplated in one scheduled exception although there did not approach the intensity of later operations.

The Board contended that Standard during June and July of 1948 operated a date confirmed service between Los Angeles and New York (exclusive of Sunday) with the exception of six days.

Standard's operations during this same period from New York to Los Angeles were an substantially the same schedule, according to the Board.

On the Chicago-New York non-stop and special flights on an average of 50 percent of the time during the last six months of 1947.

• **Willfully and knowingly offering** such regular service to the public. The Board contended that Standard knowingly offered regular transportation service as by means of ticket agents, letters, advertisements and business cards. The Board held that Standard was responsible for the acts of its agents as to offer regular service to the public.

Board investigations were aided by Standard ticket agents that the carrier operated daily service from San Francisco to Chicago and New York. Any other CAB investigation was aided by Standard's Long Beach office that the carrier provided under daily service from Long Beach to Kansas City.

• **Disregarded Notices—CAB** contended that Standard had consistently disregarded all attempts on the part of CAB representatives to point out the illegal phase of the airline's operations and made no attempt to rectify its operations to the state indicated by CAB or the Trans-Continental one which ended the investigation of the airline's alleged non-scheduled operations.

The Board issued an order to Standard on Mar. 20, 1948, to show cause which specifically advised the carrier that its operations were in violation of the provisions prescribed by the Board under section 262.1. Later the Board served another notification to Standard that its operations were still in violation of the regulations.

• **Violations—Standard** "Despite these notifications," the Board noted, "Standard made no attempt to curtail its operations. On the contrary its operations and concentrations in the public with regard to regularity of service actually increased."

The Board also charged that Standard had failed to file a mail until Dec. 15, 1947, although section 493 of the Civil Aeronautics Act required it by June 10, 1947. The Board charged that on a number of occasions Standard carried more and less than the tariff it had with the Board.

• **Report Violations—Standard** at first failed to file a report under section 467A of the act which charged because of failure of Standard to file this report on the frequency of flights during February and March, 1948. Standard contended that these were charter flights but the Board held that flights

charged to a ticket agency were common carriage and not legitimate charter operations.

Standard was also charged with unfair and deceptive practices in soliciting publicity traffic at the San Francisco airport. The Board contended that Standard's agents displayed signs in Navy shops in San Francisco harbor offering 10 to 20 percent discounts for service men and airplane riding concessions to all airport visitors. The Board said Standard's president and the agent in question testified that on such discount or special consideration for service men was actually intended and the agent solely referred to the difference between rates charged by Standard and those of the scheduled scheduled airlines.

In prohibition of its treatment of Standard, the Board stated that "the carrier by its bold and frequent and persistent disregard of the Civil Aeronautics Act is in a position to plead for a lenient penalty. Failure to avail the carrier's length of operation and to apply all sanctions available for the commission of further violations by it would make a mockery of the law, the enforcement of which has been entrusted to us by the Congress."

T-2B Test Model

North American Aviation Inc. is building the static test model of its T-2B trainer for the U. S. Air Force. Meanwhile production has for the balance of the USAF order for D8 T-2Bs in a single shop at NAA's Inglewood, Calif. plant.

The T-2B will be powered by a Wright 800 hp Cyclone 7, a new engine also used in a new model Gougeon V-15, and the Wright Cyclone 7, a new engine also used in a new model Gougeon V-15, and the Wright Cyclone 7, a new engine also used in a new model Gougeon V-15.

Meanwhile at NAA's Downey, Calif., plant, Navy plans of Coastal Scout are now being reviewed in conjunction with the A-11 carrier land bomber. They will be first Navy squadron equipped with the A-11. It is powered by two Pratt & Whitney R-1300 turbo-propellers and an Allison J-35 turbo-jet.

AOA's Stratoscruiser

American Overseas Airlines has taken delivery on its first 52 50-passenger Stratoscruiser from Boeing Aircraft Co.

Report released by AOA that it will use the 50-passenger Stratoscruiser for service between New York and London and New York and Shannon. The Stratoscruiser is scheduled to go into passenger service on Aug. 17.



Maj Gen. Edward M. Powers

Powers Gets New Curtiss-Wright Post

Creation of a new post at Curtiss-Wright Corp. and selection of Maj Gen. Edward M. Powers (USAF, Ret.) to fill it were announced last week by Paul V. Shultz, chairman.

As vice president and director of engineering, Powers will coordinate engineering activities at Wright Aeronautical Corp. and the principal and principal divisions of Curtiss-Wright.

Shultz had earlier said that he holds a few days earlier that selection of a post in "to coordinate the manufacturing operations of the several Curtiss-Wright divisions" had been deferred pending a new appointment.

• **Production Emphasis**—In describing the new post, Shultz said that the organization, Shultz will greater emphasis would be put on engineering activities of Wright Aeronautical.

The second first quarter loss \$778,400, marked an end of experimental projects, some of which have been discontinued (AERONAUTICS WEEK, May 30). Retrospective price decrease adjustments were a factor.

Sales for the first three months of this year were improved over a year ago, he pointed out, and the official orders backlog was increased by about \$19 million.

Shultz described Powers' appointment as "another step in the strengthening of Curtiss-Wright's broad manufacturing and technical organization."

Powers spent more than 30 years with the air force.

AVIATION WORLD NEWS

Shanghai Air Service to Resume

Chinese Communists also expected to permit internal air system, but some existing lines are in disfavor.

By A W Jessop

TOKYO—Chinese Communists last week were ready to let foreign airlines resume operations to Shanghai.

Starting before the fall of the city to the Communists, all international airlines, labeled "imperialist," Northwest Airlines and Pan American Airways began seeing their Tokyo flights via Okinawa to Hongkong and Manila. But both left representatives behind to make contact with the Chinese Communists and to explain methods of resuming service to Shanghai.

Northwest's Anne-D. J. King NW's vice president for the Orient who remained in Shanghai, has long expressed confidence that operations to Shanghai would continue, after a break during the takeover period. He also has been investigating possibilities of opening service to North China, after Peking or Tientsin, for which Northwest has been criticized.

One probable cause for the delay is the lack of official diplomatic relations with the new regime. The general view of the foreign powers was that they would grant de facto recognition to the Chinese Communists. So far the Chinese Communists have been acrimoniously correct in their contact with foreigners but have left no opening for establishment of anything but de jure relations.

An encouraging development has been permission for foreign ships to return to the Whangpoo River as shippers.

International Steamship Lines' air service to China is another matter. But it is highly probable that Central Air Transport Corp. (CATC) will soon operate in Chinese Communist areas. Mao Chao, Assistant Chinese chief of CATC, is still trying delivery of its Convair-Learners at Hongkong. The only reason for so doing is that he plans to reopen internal service in China.

One of Chao's associates told Associated Press correspondent in Shanghai last December: "There is every possibility that CATC will go on serving China. The steamer route is important but no matter who runs the government."

CATC, is a completely Chinese-

owned and operated company. It was a personal creation of Chen, who left it in China. It completed an excellent service record flying in China since the end of the Japanese war.

Chen National Airlines Corporation (CNAC) may have greater difficulty. For one thing it was partly owned (50 percent) by Pan American, and it was absorbed almost completely by foreign personnel. The Chinese Communists may say that if CATC can be a full Chinese operation who can't CNAC? Also, for some reason CNAC was considered more closely tied up with the Nationalist government than CATC.

CATC President Chen-Chen-Chi, Chen's son, Civil Air Transport (CAT) is about ruled out of China. CAT has no hope of operating in Communist China. Chen-Chen-Chi and his airline are considered by the Chinese Communists to have been part of Chiang Kai-shek's civil air lines.

There were the great criticism of CAT as Chinese nationalist center. One recent government of the Central Bank, all China monthly up complained of the record, about the practice which Chen might need to have situation of \$1.8 dollar exchange to CAT. When Chen would not get what he wanted he

threatened to go to Chiang. The government's comment was: "What could I do?"

Proposals for CAT to operate in China's Mid- and South-west are not becoming reality if the U. S. grants dollar aid so conditions in those areas. The dollar expense would be phenomenal for such an airline. And CAT's primary objective throughout its operation was to earn dollar exchange.

The warbirds and their possible backers aren't likely to attract any investors they may hold in the United States to pay for a foreign airline. They will let the U. S. pass out the coin. Otherwise they will hold their deposits in the U. S. to retire on.

USAF Taking Part In RAF Exercises

LONDON—Britain's latest aircraft will be at their peak for the Royal Air Force's summer air defense exercises ending July 1.

Antisubmarine patrol and fighters will attempt to defend the country against an attacking force of RAF fighters, bombers and Superfortresses of the 1st USAF Air Division. It will be the first time the Western Union air forces are represented in the exercises.

France, Belgium and the Netherlands are sending officers as observers, some of whom will have active tasks. The Netherlands will contribute a squadron of Meteors to the defending forces.

Fighter Command Hornets will make low flying daylight raids on airfields and other targets. Photo recon Spitfires and Mustangs will also take part.



HALLOW, PRODUCTION LINE

First test flight of an RAF order for 37 British Ford Balliol V6. It is now down among completion of Wolverhampton, England. Balliol a two-place light aircraft, is powered by a 1250 hp Rolls-Royce Merlin

engine. Balliol has a maximum speed of 185 mph., at 11,500 ft., and cruising speed of 280 mph., at 10,000 ft. Balliol will be sent to RAF units in Britain, India and Rhodes for further testing.

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at operating altitudes of 30,000 ft and above.

► **Second Craft Improvements**—The second *Belsham*, to be powered by Bristol Proteus turboprops, will incorporate lessons learned in a result of experience with the first craft.

It is slated to have a cleaner configuration, eliminating the external observation dome and external main fuel tanks on the cowling. When landing gear will retract completely and will operate small powerplants in the wing doors.

And as vehicles for the turbine engines will be considerably smaller than the cooling system used for the Centaurus power plants.

Fire Test Evaluates Aluminum Foil Suit

Pushing research to develop a heat and flame protective suit for aircraft fighting, the Air Materiel Command recently conducted a test at Wright Patterson Air Force Base which indicates that an aluminum foil-berberis laminated garment possesses favorable characteristics.

In tests under study by the Aero Medical Laboratory were similar in design, differing only in principal protective layer. All were lined with 22-oz. wool knit material for insulation. One possible reinforced bronze, coat, great, helmet with heat-resistant Plexiglas window, and gaskets over airtight type gaskets.

Intended to afford heat reflection as well as against radiation heat, the garments were not designed to be worn into flames although this could be done for a short period, in an emergency.

For test purposes, the suits were worn in fairly close proximity to a 2000-F. furnace flame.

Identified according to protective heat, the garments enabled the expert wearer to withstand the intense heat for three periods.

- Unreinforced cotton duck (weight)—20 sec. (Figure is considered high because water-soaked at edge of jet, jet was jettied to test heat first effect.)
- Synthetic material (Zylonite)—4-5 sec.
- Fire and multi-proofed cotton duck—25 sec.
- Aluminum foil-berberis—31 sec.
- Aluminum cotton duck—21-8 sec.
- Aluminum foil Plexiglas laminate—45 sec.

With exception of the aluminum foil laminated garment, all suits were used or burned through to the insulating lining.

Though the endurance periods showed some short for all garments, their unsuitability would be extended with use of fire hose.

Joint Air Meeting Gives New Data

IAS-BAS second international conference assembles authorities to exchange wide range of information.

"When you look the close on a research laboratory, you look more information out than you look in." With this quotation of C. F. Kettinger, T. P. Wright summed up the real purpose and value of the second international conference, recently sponsored jointly by the Institute of the Aeronautical Sciences and the Royal Aeronautical Society in New York.

But its more important than the mere interchange of formal papers in the personal contact and working friendships that produce intangible but available benefits to the profession of both nations.

A total function of the meetings is to bridge the obvious gap in "sympathy" between the engineers of the two nations. There remains little question that if the U.S. could use more of the British "pushed" technique, and the British more of the U.S. "engineering" technique, both nations would profit enormously.

► **British Approach**—The British development of the turboprop is a classic example of this approach in which the problem was attacked by a variable design of prototypes and succeeding models honed out into a profile and seemingly endless stream.

Though such extensive turboprop (and turbine) programs, they have taken the mechanical, experimental approach in which the search and the cry carry the burden of development, rather than the wind tunnel and computer analysis, as in the U.S.

Their flight test program has been a painful experimental approach with first one engine and then another in flight in the outdoor facilities of test air borders and then another.

Their program consists in large quantity of experimental data, through the outdoor ponds of which a house can be driven that is central originally in the U.S. by comparison. That this comparison can be off a slight amount is more than justified in the light of the acute matter of experimentally derived curves.

► **Our Action**—After some completion of such an experimental program, the British have a theoretical basis upon which to plan for production installations, whereas the U.S. effort would have produced only a theoretically perfect prototype, whose basic arrangement was superior but whose mechanical parts contained irreparable "bugs" that only access test could remove.

This contrast is especially in judicious-

ed. The U.S. approach is cheaper, but the British have far less money to spend. Thus, the major power British use the expensive approach, whereas the affluent Americans use the economical approach. Which facilitates more rapid progress is a most question that perhaps can not answer.

It is intention to answer the question on the basis of the turboprop, development in which has been determined more on the basis of what than by historical progress. Only in those areas in which both national policies have been the same, such as in turbojet engines and high-speed airplanes, can the relative effectiveness of the two approaches be compared directly. Obviously there is comparatively little to choose between the results of the respective developments in these fields, although it is a fact that the U.S. holds both superior and reliable aircraft speed records at the moment.

► **Opposing Statements**—It is only against this background of a duality of national policies and technical approaches that much of the significance of the Second International Conference can be accurately assessed. For example, both Frank Ocker, British, and George Edwards, Victorian-American, expressed the view that these events in airplane competition between nations and turbine test temperatures beyond which economies fall off. This is in direct contrast to the view of Ole Schreiner, NACA, who believes that the higher these two quantities are, the greater the resulting efficiency.

Apparent surprise how fits in the context at which these turbine engines are to be operated. At the 3400 rpm used, in terms of which these engines are designed, the British are finding it probably quite accurate. But for the turbine speed in terms of which Schreiner is thinking, his opinion is also accurate. Thus, the question of design policy determines the accuracy of these two statements, and simply the statements themselves.

► **New Status**—There was much that is new at the conference, together with considerable plunging of old ground, valuable, too, which provides a new discussion of the effects of high altitude on certain recent structural materials was offered by Maj. Philip Todd, Victorian-American, a masterpiece of worldwide scope.

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British Approach to 50-Ton Cargo Plane

General Aircraft's "Universal" embodies the classic design criteria, which now are being changed in U. S.

By Robert McLaren

The British Blackburn & General Aircraft Co. Ltd.'s "Universal" is a proposed 50-ton cargo aircraft design that follows an approach now generally considered out-dated.

Further, the design consideration of all cargo craft design was the achievement of low cost or transportation through simplicity and conservative performance.

Most recent experience, together with extensive analysis indicates that high performance often the greater criterion.

Evidence available from the Prototype Evaluation Board studies by Mil-

itary Air Transport Service and numerous individual analyses tend to show that cargo can be carried more cheaply at 300 mph, than at 500 mph, within certain definitions.

► **Range Demands**—This, the freighter's old ally, had gone, "dash freighter" design would appear to have exhausted its possibilities in the face of a whole new set of economic factors. One of these is the greater distance over which the all-cargo aircraft will normally operate.

It is all well and good for a plane to be designed specifically for maximum operating economy over a range of 100 mi. but previous, unscheduled experience indicates that despite the var-

ious intentions of the designer and the operator, the plane will ultimately be making 500, 1000 and 1500 mi. flights as demanded by the customer.

► **Range Factors**—Factors such as "short runway requirements," "low landing speed," "great lifting capacity," etc., which have always characterized the specifications and potential limitations of the all-cargo plane, virtually have lost their meaning.

All-cargo aircraft have now reached such a state of respectability, that instead of leading their principal markets in the jungles of Central America or the crags and valleys of Alaska (in which the above specifications were laid down), they are now also flying wing-to-wing with scheduled airlines between the 5-10,000-ft. runways of the major cities of the world.

The design objective has been

changed by this desire to suit an economical route pattern. And today's all-cargo craft designer is thinking in terms of 30,000 lb. of payload carried at a speed of 500 mph over a 2-3000-mi. route.

► **Design Weighed**—It is against this background that the new Universal would be considered absolute in this country before its prototype has been flown.

This is not to indicate fault on the part of the General Aircraft design team, who had to meet specifications laid down by the British government. Although the specifications, in all probability, have been set too full, it would appear that the specifications itself is now an integrated document no longer economically sound.

General Aircraft engineers took the classic approach to all-cargo aircraft design, which plane with large incidence angle, a low cruising speed to produce L/D_{max} engines selected for maximum cruise power, with takeoff requirements met by a multiplicity of engines rather than high power engines of lower number; provision of a drag penalty, as an exchange for simplicity of both production and operation; features and heavy reliance on high lift flaps for short runway operation at the expense of high rate-of-climb.

► **Actual Details**—The accompanying il-

"Universal" Freighter

4 Bomb Hercules 500
2400 hp @ 2400 rpm

Dimensions
Span 142 ft
Length 90 ft 3 in
Height 31 ft
Wing area 2916 sq ft

Weights
Empty weight 67,000 lb
Payload 31,000 lb
Gross weight (max.) 100,000 lb

Performance (estimated)
Max speed 242 mph @ 11,000 ft
Cruising speed, (51% power) 185 mph @ 10,000 ft
Landing speed, flaps extended 75 mph

Takeoff distance at 51% 2470 ft
Service ceiling 21,300 ft

Capacity
Total cargo volume 5750 cu ft
Total passenger capacity 90

lustrations indicate the general arrangement of the airplane. General Aircraft construction is wood throughout, with two spars, pressed flange ribs, and rivets also meeting up the R & F, 34 wing section.

The wing is set at 5½ deg incidence in order to allow cruise at the low speed of 185 mph at 10,000 ft. The incidence is constant along the span, its leading edge experiences the full stall or stall-like difficulties throughout the flight range, despite the use of 2.45:1 taper ratio and virtually no dihedral (½ in.).

Future changes would be suggested in this configuration when it is the situation to put heavier reliance on the power-driven controls than we do in this country.

► **Feathered Landing**—Arrangement of the landing gear, conventional "loop hole" profile, in which the lift landing is cut away and the upper wheel line held straight to clear the landing ramp in the nose.

It is to be noted that a low landing ramp has not been provided, although it is readily agreed that the location of the nose wheel is far forward across the lift off field.

► **Wing Lock System**—One of the present design problems with this configuration is the inevitable location of the lift landing gear long behind well aft of the main gear line-of-action, with the main short very heavy wings, when moved to the lift hatch frame struts have tends to tip the airplane back on its tail.

General Aircraft accommodated this

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Sec. Washington 25, D. C.

AVIATION WEEK, June 22, 1949

For additional listing (80-0047):
Composites Shoring—Orest Corp., Inc.,
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High Temperature Alloy FABRICATIONS

- Complex weldment or intricate form—your problem is simplified by Smith-Morris.
- Whether your requirement is an experimental stamping or a production assembly, our staff of engineers, metallurgists, certified welders, and precision machinists can smooth the way to better schedules and lower costs.

SMITH-MORRIS COMPANY
AEROSPACE THERMAL BARFOLD SYSTEMS
AND THERMAL PARTS AND ASSEMBLIES
PERDUE 20, MICHIGAN

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NEW AVIATION PRODUCTS

Aids Inspection

"Auto-Reflex," manufactured by Industrial Instruments, Inc., 17 Federal Avenue, Jersey City 5, N.J., prevents inspection backlog and sorting of accidents, expansion and other impediments to production speed with unlimited personnel. Machine finds, sorts and marks scratches, nicks, nits and nips in eight groups as clinging to standard penetrometer by using ultra-cool Standaids and pig markers are available to meet any specific requirements. Operator has only one control—flip on-off switch. By holding flip switch against the rig, he activates the testing and marking mechanism. Choice with electrically-actuated trip-down automatically resets the probe to the proper bar.



Lightweight Valve

Four wire control valve, weighing less than 37 lb., has been developed by General Automotive Supply Co., 1141 43 Wyomissing Ave., Scranton, Pa., for 1900-psi hydraulic systems. Unit shows 1 in. for 1 in. and 1 in. tubing. Designed to meet AN specifications, it has 12 1/2 in. handle torque with pressure applied and 11 lb. in. without. Leakage is zero at 3000 psi., using AN O 56 hydraulic fluid at room temperature.

Unit has aluminum alloy body. Central, removable cartridge, non-potting, steel rotor and yoke, allows in interchangeability between valves. Rotatable, close fit of three-piece assembly eliminates need for packings in internal sealing. On other parts to valve are main plate which helps retain cartridge, providing external stop action. O-ring seals all joints, and two screws. No snap rings are used. The control position is marked on side body and parts are readily identified.

has, all-steel, heat-treated gear case, built-in bearings, precision type bearings, and self-aligning shaft with mounting base. Gearshift lever and shifting diagram, showing the speed ratios, provide a quick, easy to read, instruction. Gear ratios are: Low, 2 to 1; second, 2 to 1; third, 1.75 to 1; high, 1 to 1. Units are built with 4 speeds rated at 3 hp at 900 rpm to 10 hp at 1800 rpm. Operation is on 1 or 1.5 hp, 25, 50, or 60 psi, 200-400 or 550, after mating control.



Facilitates Tube Jobs

Larger capacity "Tubemaster," developed by Lucas Precision Products Co., Garden Grove, Calif., will flame, flare, upset and bend 1/4 to 5 in. ferrule or non-ferrule tubing. Adapted furnished with the new model permit users of smaller capacity machines to achieve greater results and thus. Tubing also is available for hand operation. Device is powered with 2 hp. motor and variable speed drive giving 70-150 rpm range for handling various materials.

Improves Doping

Solvent for maintaining steady and preventing blanching in dope jobs is manufactured by Peter Pined Co., Inc., Carlisle, N.Y. Known as Dope-Sol, product is distributed by Van Dusen Aircraft Supplies, Telford Air Terminal, Telford, N.J. and is recommended for use with final coat in all finishing operations. As little as 1 pt. of dope is required. Material permits dope to flow on smoothly, and keeps camouflaged finish with actual character of non-potting. It makes dope penetrate through previous coats to blend all resin integral length longer lasting finish. Chloro is not when used in final coat, solvent character blanching even if previous coats of regular dope have blanching.

Cabin Extinguisher

Lightweight, neopentane, water-in-tungsten for lighting fires in emergency conditions on planes, is offered by Walter Kilde & Company, Inc., Belle Glade, N.J. A.C. approved, unit contains 14 qt. of anti-freeze solution. Hot extinguisher weighs under 7 lb. and operates at two pressures from —40 to 100 psi. Pressure for spraying 30 ft. stream is provided by carbon dioxide gas released from small cartridge contained in threaded neopentane handle. Device is intended particularly to put out fires in seat upholstery, curtains, paper or other ordinary combustible material. Extinguisher can be recharged by a moving top, refilling from available water supply, maintaining handle, and inserting new carbon dioxide cartridge.



Machine Tool Drive

For manually restoring machine tools formerly driven from hand-crank, recharged Type R4 portable drive, made by Lewis Electric Motor Co., Lima, Ohio, is self-contained unit incorporating integrally mounted motor and gear speed transmission. Features of device are cast-out gear-

Canadair Sales

Canadair Ltd. accounted for 76.4 percent of consolidated net sales of the parent Electric Boat Co., according to the latter's annual report. Net sales for 1968 (January-December, May 30) were \$54,355,099. Canadair's share was \$41,704,789.

In March, 1969, the subsidiary delivered the first of 22 Canadair Chieftain to British Overseas Airways Corp. Canadair Pacific Air Lines has ordered four of the craft. Canadair experts deliver on both contracts to be completed by September, 1969. Total ordered orders in 1968 year's total \$3,321,000. Electric Boat reported a \$10,834,966 inventory at Canadair's Montreal plant.

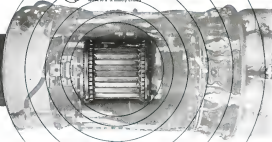
J47 Axial-Flow Turbojet Engine ...Another FEATHER-WEIGHT OIL COOLER Application

Working closely with General Electric, Clifford designed and built an entirely new pressure-resistant all-aluminum oil cooler for the J47 axial-flow turbojet engine. Whereas oil coolers for conventional type aircraft engines generally require resistance to only 100 lb. surface pressure, these new coolers called for ability to withstand 500 lb. pressure or even more.

In the Clifford wind tunnel laboratory, burst and burst tests in the axial-flow test exchange capacity, these rugged oil coolers are tested at 1800 lb., extra assurance of satisfactory performance under actual flying conditions.

Features covering FEATHERWEIGHT all-aluminum oil coolers for your application are: **CLIFFORD MANUFACTURING COMPANY, 156 GARFIELD, WALTHAM, MASSACHUSETTS** Division of Standard-Thomson Corporation, Offices in New York, Detroit, Chicago, Los Angeles.

The powerful General Electric J47 axial-flow turbojet engine, rated more than 10000 lb. static thrust, is designed to give exceptional power and speed to U.S. military aircraft.



CLIFFORD



ALL-ALUMINUM OIL COOLERS
FOR AIRCRAFT ENGINES
HYDRAULICALLY-FORMED BELLOW
AND BELLOW ASSEMBLIES



SALES & SERVICE

Wholesalers Fight To Keep Outlets

Proposal that plane distributors be permitted to handle accessories and parts gets support at ADMA meeting.

By Alexander McCurdy

COLORADO SPRINGS—Tired of seeing more aircraft accessory business to the airplane distributors than to the big regional wholesalers of accessories and parts, a meeting with strong opposition from the wholesalers, who up until now have been the principal outlets for the equipment.

In the reasonable position of being "in the middle" as this controversy are the manufacturers of the propellers, engines, tailwheels, nose gear, etc., who have to deal both with the airplane manufacturers and with their own independent distributors.

Controversy which has been simmering almost since the first postwar personal planes was marketed, was brought out in the open at the summer meeting of the Aviation Distributors and Manufacturers Assn. here when Dick Flower, Cessna Aircraft Co. sales manager and a leading proponent of the new trend, presented a frank discussion of the problems. He got a rare nod of assent of the big independent distributors in the discussion which followed.

► **Help To Distributors**—Flower told ADMA that Cessna wanted to distribute as much as possible of equipment that goes on Cessna planes through its own distributor system.

"The personal plane industry is not selling enough new planes today to replace the ones which are used up, and we've solved this condition will continue through 1959," Flower told the group. "But unless we keep a good sales organization to sell the planes, the market also drops off for the accessories. The sale of the plane must come first, but we want to help our distributors by giving them the supplementary business, too."

Flower and his company preferred to have Cessna distributors deal as distributors directly with accessory manufacturers except for original equipment. But he said his company was willing to provide the accessories to its distributor for a nominal carrying charge covering actual costs of handling if an accessory manufacturer preferred to make a single deal with Cessna rather than appoint the Cessna distributor as its distributor.

Such an arrangement, he thinks, would assure the aviation that the program would not set up too many distributors with whom accessory manufacturers would have to deal.

► **Other Expenses**—Consolidated Motion has appointed approximately 75 percent of the Cessna distributors as its distributor also. Exceptions are made due to lack of service facilities.

Somehow propellers had an arrangement where distributors of airplanes act as distributors of propellers which fit their planes.

McCurdy propellers, after trying out a system under which airplane operators could also act as distributors, recently changed its distribution plan to distribute through the big regional supply houses.

A McCurdy representative told Aviation Week that it was found the airplane distributors with five or more outlets made consistent efforts to push sales of McCurdy propellers as

any other make of airplanes than the ones they were selling.

Consolidated motion sales division has agreed to let Cessna have exclusive distribution of the increased landing gear for Cessna planes, to be handled through Cessna distributors.

Flower told Aviation Week that he considered the trend a growing one, and that he believed other personal plane manufacturers would open with him. However, he believes that the present personal plane market trend will stimulate additional plane manufacturers on the market will be slowed by three or four surviving companies. So the new distribution trend will not mean a wide leveling out of additional distributor outlets through many plane companies.

► **Add Planes to Accessories**—The Cessna sales manager indicated that one single solution would be to have the accessory suppliers take on personal plane distribution business and lowered out to same suppliers were already doing this.

Larry Zupansky, head of General Aircraft Supply, Detroit, reacted to Flower's plan by believing his company and other independent distributors were doing more to promote sale of personal planes by not confining themselves to representing one particular plane.

W. T. Trow, general manager of Scania Motors Inc. in New Bedford, Aviation Corp. pointed out that Budin had withdrawn a proposed entry in the per-



NEW ROADABLE

Automobile equipment of the new Avator, three-place roadable aircraft which Houston B. Taylor is developing at Longview, Wash., is shown with the designer. Can easily under 100 lb. Power and loading gear have been designed with CNA approval. The 100 hp Franklin six-cylinder engine has cross-over exhaust, belt-drive power to cooling fan, and runs a dual cable power control for

electric drive. Comfortable and speed is reported at 45 mph which is achieved at 2000 rpm. Company has applied for approval to sell a stock issue to build 10 roadable units, after completion and test of the flight approved prototype now under construction. Highway flight component is better to rest of car, with cross-over shaft running back to power propeller.

BRIEFING FOR DEALERS & DISTRIBUTORS

NOT TOO BAD—Despite the dark grey paint with which a lot of people are dubbing the current picture of personal aviation, a poll of the 70-odd distributors and manufacturers at the recent Cessna Springs summer meeting at Aviation Distribution and Manufacturers Assn. showed that many of them are still "done" all right.

Some responses quoted here:

- **Don Plover, Cessna:** So far, our dollar volume in implant sales is higher in 1983 than in 1982.
- **Earle Scott, Scott Aviation Corp.:** Sales are up 15.5 percent this year for the first five months, with most of the new volume from our new tail wheel assembly and new engine equipment.
- **Philip Lane, Precision Automotive, Houston:** We're doing excellent now for Bell on their Franklin helicopter engine but most of our volume is still in Pratt & Whitney Wing J engines.

FAINT CHERS FOR CODE—Attempt of the ADMA to get its members and customers to use easily its telephone code isn't working too well judging by the weak price for the code listed at Cessna Springs. Cessna says that the code is a fine thing if people use it but most aren't taking the trouble.

Members decided to defer a proposed code system, and save the system expense, pending further study about the worthwhileness of the whole project. Sample codes:

- **ACRAD**—The account has been changed off as a bad debt.
- **IPNCT**—It not collected we intend to refer to Don & Richard.
- **DADAL**—Please advise shipping date balance due on our order.

WHOSE BABY?—Problem of allocation of aircraft supplies has surfaced in the new year's lead between the manufacturer who makes the stuff and the distributor and dealer who stock it, but neither group seemed to want to cede it at the ADMA discussion.

Steve Padgett, Pacific Aerospace, speaking for the distributors, proposed a plan for manufacturers to take back stock/stock stuff with distributors during the low. George Johnson, of Southeastern Aircraft, reported that one manufacturer showed his company an extra discount to cover his responsibility for stock/stock, and that it then became Southeastern's responsibility entirely. Some of the manufacturers seemed loath to accept any definite responsibility, although some sound a definite "baser beware" policy.

MIDGET ORDERS—Found how operators who continually lose they orders of supplies from the distributor are leaving both parties in the transaction, it was concluded at the ADMA meeting. H. E. Wheeler of Buffalo Aeromotion Corp. reported that analysis of his orders from the operators showed approximately 75 percent amounted to \$5 or less and that these constituted less than 15 percent of his total dollar volume. Cessna was cited by distributors, at purchasers of little more than a dollar made by operators who flew in from adjoining towns to get the consumables.

Problems resulted on sale of more education needed to get customers to plan orders in advance, eliminate many of the penny-rod orders which cost more to handle than the profit involved, and often could be prevented by planning.

ANOTHER TRADE SHOW—Don Bonhage, ADMA's president, is mounting out the aviation industry on the domestic jet market system made show at the next ADMA convention, at French Lick Springs, Ind., Nov. 9-13. Last year's show at the Cleveland ADMA meeting was amiablely successful, earned principally by a group of convention attendees of National Aviation Trade Assn., which presented that group from being at show during much of open time.

ADMA would like to have personal plane manufacturers get in on the French Lick show if it is held and make it something bigger and better than last year. Invitation will again be extended to NATA to join with ADMA in the November meeting.

—ALEXANDER McSWEENEY

small plane field, because it had been felt that Bendix could not sell its accessories to other plane manufacturers if it was a direct competitor. The same reasoning might apply to the new supply houses which might supply different plane distributors, if they, too, took on plane distribution.

Tom Davis, head of Precision Aviation, Inc., Waltham-Staten, N.Y., who distributes planes in addition to its supply business, indicated his company had not experienced serious difficulty in supplying other airplane distributors.

► **Inventory Problem**—Other supply house representatives believed that the amount of inventory required to serve as an accessory distributor could be expected to limit severely the number of plane distributors who would undertake to carry such a stock.

The plane distributor will be up against the same problems of stock obsolescence and warehouse space that we are," one big independent supplier pointed out. Atkinson Weiss, "and in most cases he will be putting secondary emphasis on the accessory business. Meanwhile, his competitor across the street will be keeping in every big part and accessories components for him, and calling on us for derivatives to be made there."

"We won't have his capital tied up and even so it fur his main business, selling airplanes."

Spin Tests Out

Spin tests will no longer be required of student pilots effective Aug. 15 as a result of a change made last week by CAB in part 43 of the Civil Air Regulations. The new ruling provides for a structure of the student pilot to receive from practical and power-off stalls entered from all normal attitudes.

The subject of spin tests has private pilot licenses has been the subject of controversy for the last two years or more, advocates of eliminating the tests contend that more middle-aged men and women who might otherwise become pilots are discouraged by the test. It is reported by CAB accident statistics that the only time fatalities are there in which pilot was so close to ground that recovery was impossible even if he knew how to recover. Spin test has been compared to tracking a student submersible driver how to run his or her a star in a wet pavement.

Elimination of the spin test on light airplane design is expected to lead to more improved airplanes. Since a large part of the light plane market has been for minor planes, which had to be spreadable in order to be used as a contract, it is believed that many recoverable planes will soon be available in quantity.

Torrington Needle Bearings provide compact, rugged design for Curtiss-Wright B-36 propellers



Spun in at a premium at the pitch control mechanism of the Curtiss-Wright B-36 propeller, Torrington Needle Bearings are used in this mechanism because they provide exceptional compactness and load capacity.



Three large main gear shafts are mounted on Needle Bearings, and bearings are kept relatively small. Bearings, being the pitch operation, these gears need the high duty number of revolutions at 1500 rpm during the feathering.

To keep power plants light for flight, rugged for safety and efficient for low maintenance and long service, use Torrington Needle Bearings. Let our engineers help you with any related design or installation problems. Write today, The Torrington Company, Torrington, Conn., or South Bend, Ind. District offices in principal cities.

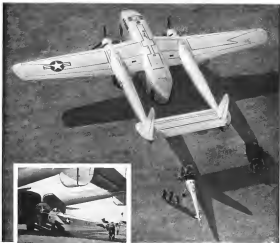


TORRINGTON NEEDLE BEARINGS

Needle • Spherical Roller • Tapered Roller

Slotted Roller • Ball • Needle Rollers

Over hazy jungles, swamps and mountains, helicopters of the USAF Air Rescue Service have been in search of stranded airmen and passengers. The helicopters got there because they have been given a "mother" ship—the Funchild Packet—that transports them over distances far beyond their range. Thus, our Air Force has added a new ability to the versatile Funchild Packet—increasing the importance of its part in the development of modern airborne military tactics.



Mission of Mercy—An Rescue personnel load a baby carrier into the spambot cargo hold of a Fairchild ProJet.


FAIRCHILD

ENGINE AND AIRPLANE CORPORATION

Effect size: $d = 0.4$ (small to medium effect size, Cohen, 1988)

10	Forest: Forested Slopes, Asheville, N. C.	11	Forest: Old Field, Tenn.	12	Forest: Forested Slopes, Asheville, N. C.
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11

AIR TRANSPORT



PASSENGER PLEASING ideas such as this modified baggage hold are stuck in trade oil.



TRAFFIC/TRAFFIC: Richard H. Kane, Roddy E. Turner, Allen A. Finkle and H. E. Hay

TPA Battles for Hawaiian Traffic

Efforts to sell itself as "people's airline" combat greater experience and equipment of rival Hawaiian Airlines.

Four multimillion DC-3s took to Henson's short runway this month and ended a 30-year monopoly in one of air transportation's most lucrative fields.

With chairman Ruddy F. Young, its president, about one of the planes, Trans-Pacific Airlines, Ltd., began offering Hawaiian Airlines, Ltd., its first scheduled competition-bidding for a corner of the 400,000 air riders who will travel through the archipelago this year.

The new David takes on a steady

• **Few Planes, Many Ideas**—The giant has twelve DC-8s, including two used for air freight, and a record of nearly

20 years' service without a passenger or crew fatality

TPA, which celebrated its third birthday June 4, has lost DC-3s, several more coming, some rough and ready toolboxes and a box of books of

When Houston Astros reduced its fare to the level of Trans-Pacific fares, local companies wanted Shuttle King.

inhibit in the "obvious sense" of He-

► **Salutes to River-Side King.** "Our

fruits were on a par with Hawaiian Air lines' at the start of operations. However, only in 1945, Hawaiian found it self compelled to raise its fares. TPA's fares were not raised then—and have not been raised since.

TPA is happy now to have Hawaiian Airlines operating on the same basic fare schedule as TPA. It would otherwise be confusing to the public to have similar air service available at different prices.

When Hermann Auerbach was the National Safety Council 1946 safety award, TPA president Tongg was quoted in the local press as offering "sincere congratulations" to HAL president Stanley C. Krawiec. Said Tongg:

We shall do our utmost to continue to maintain the high standard of safety achieved on routes, we look forward to matching your excellent record of performance.

► **DC-3 Modified** — Trans-Pacific DC is now carry 25 passengers, and the baggage compartment is modified to handle luggage. The conversion was designed by William Russell, TPA's vice president operations, and the compartment has two cotrests—see for larger terminal points where the rear cargo door swings open, and so additional entrance into the seating section through a small bulkhead door which provides an exit route.

The baggage compartment is only used as a store of items instead of stowing the passengers and establishing Trans Pacific as "the people's airline."

• **Stock not All-Another** is broad-based stock ownership. To attain this 1st rule, first capitulation TPA is offering 1 surface share of common stock at par value of \$1 each. So far, no single shares have been sold but blocks of 50 are being spread around, with stock holders refrained to House members. TPA apparently hopes to prove that a stockholder with 50 \$1 shares will feel like a bigger stockholder than if he holds five shares at \$10 each.

President Torrey, son of a Chinese immigrant laborer, owns some 5 percent of the stock and has effective control of the corporation. There are more than 220 stockholders, and the service is reaching out for more. Last month, some 840,000 shares had been subscribed—the last 140,000 under the dollar-a-share plan in late October.

► **Prospects**—TPA and Haverhill agree that TPA should catch more than 100,000 of the estimated anytime riders in its first year—perhaps a quarter or a third of the whole lot.

And CAE, in granting TFA its charter, agreed that (1) it was high time to end the monopoly in Hawaiian transportation, and (2) both lines could operate profitably (ANNOUNCEMENT, Mar. 7).

AVIATION WEEK, June 22, 1968

The CAB report estimating TPA costs.

The world would have the most modern airports of providing a competitive edge to Hawaii, and of making the construction of improved airports which may have been imposed by Hawaii as a result of the services of intercontinental carriers.

The record of CAB, that about the time Trans-Canada and other non-subsidized carriers started moving, Hawaii initiated a number of improvements in its airports.

Hawaii and TPA fought a hard legal battle on TPA's last three years—Hawaii fought a court injunction to stop TPA from virtually subsidizing operations. TPA filing a \$2 million suit against Hawaii which is still pending.

But TPA's comments on at least one point. Federal officials have declared that TPA will use Hawaii's communications network, and the two will share the costs.

Rails On Air

Airlines are formidable competitors, so AAR would cut off subsidy.

The Air of Vancouver Railroad had in case against the airline, before the Senate Interstate and Foreign Commerce Committee last week. Railroad spokesmen claimed that airlines are not "vulnerable" competitors in road and freight as well as passenger business.

Carter Page, AAR counsel, and J. H. Prudden, AAR vice president, proposed a five-year program to phase out AAR's program involved.

• **Advocates of "liberal" government subsidies to commercial airlines.** In addition to subsidization, though, most members of AAR called for a reduction of "subsidization through promotional programs"—construction and maintenance of airports, installation and operation of air navigation facilities, traffic regulations, air-traffic services, special weather services, airport security services, mail and express delivery, and inspection and maintenance of "nonprofit" services—CAA, CAB, and National Aviation Committee for Airports.

• **Removal of all government aid to subsidization now causing an "unbalanced" and "unreasonable" transportation system.** AAR contended "To the extent that government aid is provided to subsidize air service, it is a detriment to the entire air transport system, and the resulting decrease in tolls from surface carriers is an injury to

the commerce interests of the United States. U.S. commerce needs surface transportation in much greater volume than it needs air transportation, and it is not the part of wisdom to put more air transportation to the detriment of surface transportation."

• **Big losses in air rates both for passengers and freight rates.** If government subsidies are removed, "airfares would be forced, AAR claimed, into "artificially" low when passengers and freight rates are now possible only because of government support. AAR said that the 1943 low-mile average of the domestic mail lines was only 37 cents for passengers and 19.65 cents for freight, but 126 cents for government aid.

• **Inadequate Value-Commercial airlines.** The AAR spokesmen argued, in an "unjustified" view to the military air services. The total personnel of all domestic and overseas air carriers at the end of 1943 was only 75,934, of whom 6,666 were pilots and copilots, it was said. By contrast, the government had over the scheduled air transport services, in total, down to the date, AAR pointed out, it would amount to only three percent of the total military effort concentrated at the peak of the war. The total supply would amount to only slightly more than three percent of the number of pilots required at the peak of the war. AAR argued that national defense is never developed directly by the services, but not "directly and inadequately" through support of commercial aviation.

• **Witnesses Listed—Other witnesses** before the committee included to speak up the benefits of air transportation, an investigation of airline business June 13-14.

• **Sam Sullivan,** motion picture director who urged expansion of development of low-cost airlines, transportation. He opposed expansion of air transportation, said that private carriers, claiming it was aimed at affecting the low fares, not those with supporting routes, to support for seeking acquisition of small airlines.

• **Robert S. W.**, president of Continental Airlines, who pointed to "concrete contributions" by leader lines in a major area for airline lines. He reported Continental has had discussions with Pioneer Air Lines and Trans-Texas Airways, looking to their separation.

• **Samuel Jones,** president of Colonial Airlines, who charged CAB with discrimination against Colonial, authorizing an "illegal" "discriminatory" route structure for the present and proposed subsequent lines which would make possible no constant operation. Colonial's financial headgear in "how to stay," he declared, makes a plan to withdraw, for its acquisition of Northwest

Airlines' track record and it is a loss New York-Washington and New York-Boston-New York-Toronto routes.

After the change of government administration, at Washington, Air Line, claiming that the high rate pattern bestowed on AAR by CAB gave it a competitive advantage over other carriers.

• **Continuing AAR President Edgar Reichenberger's** proposal to use the ten payers \$1,400,000 annually in mail pay by taking over Colonial routes, Jones offered to take over AAR's operations and donate \$35,000 to charity if he failed to both reduce its mail pay requirements and at the same time increase its earnings.

• **Mail Service, chairman of Flight Route Officers.** He said that the AAR spokesmen appearing the communications capabilities of eleven scheduled and two non-scheduled airlines, who charged CAB and CAA with limits in changing upon adequate communications facilities and service.

• **Radio Technical Committee for Aeronautical long-range program** for air carrier flying at a wage of approximately \$1 billion, since its objective could be accomplished by the use of facilities and by adequately staffing stations.

ICAO Approves ILS and GCA

International Civil Aviation Organization has approved ILS and GCA as international standard equipment for low approaches, to airports under instrument conditions.

Consent of ICAO recently voted to allow U.S. to GCA and ILS. It is very high frequency radio based the standard instrument landing system for international airports with GCA (ground and precision) lines approach used a supplementary aid for air traffic control, and for aircraft not equipped with ILS receivers.

Other standards approved by the council also adopted a remedy for U.S. airports. VFR approach procedures were adopted in the standard instrument aid to navigation and precision made for adding a standardized system of distance measuring equipment (DME) when it becomes available.

No standards were approved for long range navigational aid. ICAO director stated that no completely satisfactory long-range navigation equipment has been satisfactorily developed to warrant its adoption. VFR approach procedures have long range approach will continue to be low frequency. ILS.

• **Available Meeting—Montreal,** date given representing 13 contracting states at ICAO's first assembly, scheduled for two weeks to discuss of advance-

tive and budgetary matters and it is agenda for the meeting, which concluded only last week.

• **At the meeting** the first deliberations were the ICAO's first deliberations.

• **Voting power in the Assembly, Council and subsidiary bodies,** including regional meetings, was suspended for India, Nicaragua, Paraguay, Poland and the Holy See. Kingdom of the Jordan because of their failure to pay ICAO financial obligations. Payment was made for maintenance on previous day.

• **The Council** is to consider selection of staff salaries and report them to the Assembly in 1950.

• **A U. S. proposal for consolidation of the past report emergency fund** with the existing emergency fund, with Canada's financial from the latter authorized up to \$100,000 for relief on expenses occurring in any one financial year.

• **The Council decided** to study the feasibility of holding the fourth assembly outside of Montreal, with particular reference to an invitation from Argentina to meet at Buenos Aires.

• **Prudence—On the first of these,** the Council was authorized to discuss with the United States the whole question of its relations with ICAO. Payment of outstanding contributions will be returned when possible. Filing, settlement, other countries will be considered and recommendations submitted to the fourth assembly.

• **Revenue of dollar shortages,** member states in certain circumstances may be permitted to pay a proportion of their ICAO contributions in other currencies than dollars.

• **At the assembly** matters at Buenos Aires, next year, it is probable will do so in consultation with Canadian, South American and South African. Agreement on navigation facilities.

CAB Acts on Northwest Financing

Civil Aeronautics Board has asked the Reconstruction Finance Corp. to guarantee a \$12 million loan to Northwest Airlines for purchase of six Boeing Superhercules.

The loan would be made by a group of 11 private banks and would be part of a \$12 million loan to Northwest to finance flight equipment. CAB voted ILS to guarantee loan—worth of the total \$12 million loan. Northwest already has secured \$4 million from private banks with which it bought Martin Model 212 Superhercules.

CAB in a letter signed by Board Chairman Joseph O'Connor told RFC that it would approve Northwest's application for the bank loan if RFC would participate in the guarantee to the amount of \$12 million.

Air Pact Stirs Senate Tempest

Commerce Committee wants future agreements in form of treaties requiring Senate ratification.

Legislation proposing that all future international air agreements take the form of treaties, making them subject to Senate ratification, was reported out of the Senate Commerce and Foreign Relations Committee last week.

The action was a response to the request that followed the recent U.S.-Canada bilateral pact, (Aeronautics Week, June 13) which Colonial Airlines, Canada's largest airline, and U.S. airlines, including Trans-Canada, are to fly to the Canadian Northwest. The ship is to fly to the Northwest to carry traffic to Anchorage. At present this traffic goes by rail from Edmonton and board Northwest planes at Anchorage for the Coast, he said. U.S. planes will handle only independent shore of Canada traffic from now on, he continued.

He declared vocally all of it should go by ICAO, which only recently has been authorized to enter into agreements with Canada, he said. (An April when Newfoundland became a part of Canada).

• **Traffic Rights—**The "Northwest" Toronto route obtained by the U. S., Canada would be "worth something" but not what the Montreal-New York route is worth to Canada. Under the pact, Canada also obtained traffic rights at Honolulu on a through route from Vancouver to Honolulu.

• **South Shipper—**R. Smith, president of American Airlines, who got the pact, said it is a different light. "We have refused a severe competitive disadvantage," Smith said, "because the Canadian government action has been able to operate in the air line stop privileges. The Canadian line has been running better than 80 percent of the traffic."

• **Ammon is ailing CAB** is point it to begin the new treaty July 1.

ICAO Trucks Down Meaning of Course

When is a landing a course, and a course a track? The International Civil Aviation Organization's Air Navigation Commission recently tried to answer the question. In its latest meeting, the commission decided on the word "track" which referring to the direction of the path flown is added to be flown by an aircraft, use the word

and revenue. Adams tested the outcome "in their cognizance."

• **Landis Challenge—**Landis challenged CAB decisions that (1) traffic rights obtained by the U. S. at Edmonton will be annually for Northwest Airlines, and (2) that rights at Gander will provide \$4 million in traffic annually for U.S. carriers (Pan American Airlines, American Overseas Airlines, and TWA).

• **Canadian Government—**The Canadian ship is to fly to the Northwest to carry traffic to Anchorage. At present this traffic goes by rail from Edmonton and board Northwest planes at Anchorage for the Coast, he said. U.S. planes will handle only independent shore of Canada traffic from now on, he continued.

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"leading" when referring to the direction in which an aircraft must be headed, having due regard for wind, pressure, etc., in order to follow an intended path.

The term "course," according to the comprehensive rewording in ICAN, should no longer be used in certain official documents while there is a possibility of misunderstanding what is meant by the expression.

► Translating Given Trouble—Originally Western Europe based its terminology upon the ICAN definition and as a consequence in 1919, in these definitions, the French list was the accurate one. It defined an "angle of cup," which the British translated as "course angle" and the Americans, not a member of ICAN, translated as "heading." ICAN also defined an angle de descent, which the British translated as "track angle" and the U.S. translated as "course."

Result has been some misunderstanding and confusion when American crews have conducted French aircraft and vice versa.

But this day, no fatal accidents have occurred because of the confusion. ICAN's acceptance of the translation, the report will eliminate the word "course" in its navigation terminology and stand alone on "track" and "heading."

LATA Would Change Weather Terminology

A change in concept and detail of present regulations on weather terms seems to be recommended at the third annual International Air Transport Association conference, notably conducted at Eugene, Oregon, September 1-5.

The conference left that declaring an airport open or closed for landing and taking off partly on the basis of what the pilot could see for himself has been superseded by new developments in landing aids.

► Critical Height—One recommendation A change in terminology—instead of seeing the conference advocated the use of "critical height," defined as the altitude at which instrument approaches should be standardized if the ground is not visible.

The conference also asked LATA to study the extent to which these critical heights could be reduced.

► English-Talk Background meeting attended there are now about 900 in transatlantic airports equipped with approach-light systems and recommended that lights be installed at about 1,000 feet above ground to increase schedule reliability.

No attempt was made to standardize on a single approach-light system, but the committee made these recommendations: Low intensity approach lights for single landing—either light variable or constant systems, and high intensity lighting for land without approach—either the slope line system or the Catlett (dash and constant) system.

Early implementation by ICAO of a regulation calling for 500 ft segments between traffic levels was voted by the conference, which also endorsed the idea of a new instrument—aircraft light and indicator—and asked governments and manufacturers to define the desirable characteristics for such an instrument.

Parts Prices Cut

Douglas Aircraft Co. has made a 10 percent reduction in the retail price of standardized spare parts for the DC-3, DC-4 and DC-6.

New price policy is effective for all orders received at the Douglas Santa Monica plant after July 4, according to W. S. Fiver, parts sales manager, who made the announcement at the second Air Transport Association yearling meeting, which took place at Denver, Colo.

Nonstops Get More European Traffic

Unsubsidized airlines, which have been barred from making nonstop flights to Europe since May 1946, are beginning to win some of those traffic rights.

The Civil Aeronautics Board, usually staid in its special complexion, has changed its position temporarily because of the heavy demand for transatlantic transportation during the next few months. As a result, airlines and other groups will be able to make flights to Europe and the Middle East for substantially less than the regular airline fare.

Other government agencies have strongly endorsed CAB's action, since it will help spare over U.S. dollars abroad and, presumably, promote good transatlantic relations.

► Orders Reduced—Early this month, CAB gave Transocean Air Lines authority to make 41 nonstop flights between the U.S. and Europe from June 1 to Sept. 10. Student groups will be carried on the outbound run, and displaced persons will be brought to the U.S. on many of the return flights.

Seaboard & Western Airlines was granted similar permission to make 37 nonstop flights between the U.S. and Europe.

Previously CAB had authorized Trans Caribbean Air Cargo Lines, Alaska Airlines and Central Air Lines to make passenger flights to Israel. The Flying Tiger Line was given a concession to carry several thousands of Catholic students to Rome this summer in connection with the Holy Year celebration (November 1950, May 51).

► Discusses Shortlanded—These flights, CAB declared, will not adversely affect the interests of U.S. certificated transatlantic carriers. It said the certificated lines will still be able to provide adequate charter or regular scheduled service to accommodate the student movements during the peak summer season.

Transocean and Seaboard & Western will make their nonstop trips with its newly under an agreement with Youth Agency, Inc.

► Part With IRO—Youth Agency made an agreement with the International Refugee Organization (IRO) of the United Nations so that about 27 of Transocean's nonstop trips and 22 of Seaboard & Western's nonstop trips can be used for transporting displaced persons to the United States. This arrangement cuts down materially the number of non-stop revenue flying flights that the two carriers will have to make.

In return for the nonstop plane space made available by Youth Agency in the early summer, IRO will give an equivalent amount of standing space to the students when they visit its centers in the U.S. in the late summer.

Through the transportation package, IRO will be able to reduce by several results its available for DP care centers, and the student groups will not have to bear the expense of deadhead nonstop flights.

► American Airlines—Reported 147,514, 475 passenger miles for May, 1949, 16.5 percent higher than May, 1948,

and a new record for the year. Air freight was up 24.8 percent over May, 1948, with 2,388,000 tons miles carried last month. — AA will start direct nonstop flights between New York and Toronto July 1, under the new U.S.-Canada agreement. Previously, all N.Y.-Toronto flights had to stop at Buffalo.

► BOAC—This week will reduce its round-the-world fare to \$2886 from \$3979.74, a reduction of \$99.70.

► Canadian Pacific Air Lines—Increased weekly service between Vancouver and Chetiville, on the west coast of British Columbia, will add Lockheed Lodestar to busy routes and freight in addition to passenger.

SHORTLINES

► American Airlines—Reported 147,514, 475 passenger miles for May, 1949, 16.5 percent higher than May, 1948,



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of the 1949 model. We have the figure with supporting photographs, lots in the office. In these separate trunks, the Norton was able to defeat the Hercules by engine output, 50 foot and more. The last Norton trunk was 710 feet, and the last Hercules trunk was 280 feet.

Getting back to the Algonquin comparison, the Norton engine, the Hercules of the early North American type, two years old and with 1000 hours logged data. It is more than 100 ft. higher.

All this is the long way of getting to the point that we too had no conflict of interest in the Hercules, while 512. Hercules, when we do not know it off, probably did not obtain the performance of which the Norton is capable. Interestingly, our records indicate that the engine was down to 200, built for North America, and was last sold July 1, 1947.

Of course, we don't let the Hercules Norton comparison right should be to see the ground to the location of potential erosion, actually, these are the two best places in the air today, both at which have excellent facilities for operating efficiency and safety. We consider advantages to the Hercules—principally, speed—and we mention that the Norton, for short, did not perform, it was not a good one, it is a fairly fairly way we'd like very much to have William F. Ryan, resident in our own grounds, stay in the Hercules engine case that while you are there, in order that you may know for yourself the Norton's truly remarkable quality. We'd like very much to have you fly around on a short hop with Shero. I feel certain we can guarantee that you will be amazed at the performance of which the Norton is capable when properly flown.

And a word about Gentile and Weaver men. True they have dropped of their North American Norton and have left a big Canon. However, on distribution, with the Norton we involved since they wanted a new one. It is not simple that from Gentile, these plans, could and we together with our distribution as a really appreciable item in fact on the North American Norton which this required to trade for a Ryan Norton.

WILLIAM WARDEN, Public Relations Manager
Reno, California, Company
Lindbergh Field
See Page 17, Col.

Irresistible Urge

We are very much attracted to some of the paragraphs in a recent issue of the "American Talking" to be issued in The Village by KLM Royal Dutch Airlines. We regret that we have no picture available which would show you Captain Anders Tollet Olsen in the Trophy Hunt in America, where we have for some time offered our public a chance to sit in on comfortable chairs at a few moments while being served.

Irresistibly every person who has entered this "Tollet Olsen" has remembered to an inevitable urge to sit.

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2123-2124, 2125-2126, 2127-2128, 2129-2130, 2131-2132, 2133-2134, 2135-2136, 2137-2138, 2139-2140, 2141-2142, 2143-2144, 2145-2146, 2147-2148, 2149-2150, 2151-2152, 2153-2154, 2155-2156, 2157-2158, 2159-2160, 2161-2162, 2163-2164, 2165-2166, 2167-2168, 2169-2170, 2171-2172, 2173-2174, 2175-2176, 2177-2178, 2179-2180, 2181-2182, 2183-2184, 2185-2186, 2187-2188, 2189-2190, 2191-2192, 2193-2194, 2195-2196, 2197-2198, 2199-2200, 2201-2202, 2203-2204, 2205-2206, 2207-2208, 2209-2210, 2211-2212, 2213-2214, 2215-2216, 2217-2218, 2219-2220, 2221-2222, 2223-2224, 2225-2226, 2227-2228, 2229-2230, 2231-2232, 2233-2234, 2235-2236, 2237-2238, 2239-2240, 2241-2242, 2243-2244, 2245-2246, 2247-2248, 2249-2250, 2251-2252, 2253-2254, 2255-2256, 2257-2258, 2259-2260, 2261-2262, 2263-2264, 2265-2266, 2267-2268, 2269-2270, 2271-2272, 2273-2274, 2275-2276, 2277-2278, 2279-2280, 2281-2282, 2283-2284, 2285-2286, 2287-2288, 2289-2290, 2291-2292, 2293-2294, 2295-2296, 2297-2298, 2299-2300, 2301-2302, 2303-2304, 2305-2306, 2307-2308, 2309-2310, 2311-2312, 2313-2314, 2315-2316, 2317-2318, 2319-2320, 2321-2322, 2323-2324, 2325-2326, 2327-2328, 2329-2330, 2331-2332, 2333-2334, 2335-2336, 2337-2338, 2339-2340, 2341-2342, 2343-2344, 2345-2346, 2347-2348, 2349-2350, 2351-2352, 2353-2354, 2355-2356, 2357-2358, 2359-2360, 2361-2362, 2363-2364, 2365-2366, 2367-2368, 2369-2370, 2371-2372, 2373-2374, 2375-2376, 2377-2378, 2379-2380, 2381-2382, 2383-2384, 2385-2386, 2387-2388, 2389-2390, 2391-2392, 2393-2394, 2395-2396, 2397-2398, 2399-2400, 2401-2402, 2403-2404, 2405-2406, 2407-2408, 2409-2410, 2411-2412, 2413-2414, 2415-2416, 2417-2418, 2419-2420, 2421-2422, 2423-2424, 2425-2426, 2427-2428, 2429-2430, 2431-2432, 2433-2434, 2435-2436, 2437-2438, 2439-2440, 2441-2442, 2443-2444, 2445-2446, 2447-2448, 2449-2450, 2451-2452, 2453-2454, 2455-2456, 2457-2458, 2459-2460, 2461-2462, 2463-2464, 2465-2466, 2467-2468, 2469-2470, 2471-2472, 2473-2474, 2475-2476, 2477-2478, 2479-2480, 2481-2482, 2483-2484, 2485-2486, 2487-2488, 2489-2490, 2491-2492, 2493-2494, 2495-2496, 2497-2498, 2499-2500, 2501-2502, 2503-2504, 2505-2506, 2507-2508, 2509-2510, 2511-2512, 2513-2514, 2515-2516, 2517-2518, 2519-2520, 2521-2522, 2523-2524, 2525-2526, 2527-2528, 2529-2530, 2531-2532, 2533-2534, 2535-2536, 2537-2538, 2539-2540, 2541-2542, 2543-2544, 2545-2546, 2547-2548, 2549-2550, 2551-2552, 2553-2554, 2555-2556, 2557-2558, 2559-2560, 2561-2562, 2563-2564, 2565-2566, 2567-2568, 2569-2570, 2571-2572, 2573-2574, 2575-2576, 2577-2578, 2579-2580, 2581-2582, 2583-2584, 2585-2586, 2587-2588, 2589-2590, 2591-2592, 2593-2594, 2595-2596, 2597-2598, 2599-2600, 2601-2602, 2603-2604, 2605-2606, 2607-2608, 2609-2610, 2611-2612, 2613-2614, 2615-2616, 2617-2618, 2619-2620, 2621-2622, 2623-2624, 2625-2626, 2627-2628, 2629-2630, 2631-2632, 2633-2634, 2635-2636, 2637-2638, 2639-2640, 2641-2642, 2643-2644, 2645-2646, 2647-2648, 2649-2650, 2651-2652, 2653-2654, 2655-2656, 2657-2658, 2659-2660, 2661-2662, 2663-2664, 2665-2666, 2667-2668, 2669-2670, 2671-2672, 2673-2674, 2675-2676, 2677-2678, 2679-2680, 2681-2682, 2683-2684, 2685-2686, 2687-2688, 2689-2690, 2691-2692, 2693-2694, 2695-2696, 2697-2698, 2699-2700, 2701-2702, 2703-2704, 2705-2706, 2707-2708, 2709-2710, 2711-2712, 2713-2714, 2715-2716, 2717-2718, 2719-2720, 2721-2722, 2723-2724, 2725-2726, 2727-2728, 2729-2730, 2731-2732, 2733-2734, 2735-2736, 2737-2738, 2739-2740, 2741-2742, 2743-2744, 2745-2746, 2747-2748, 2749-2750, 2751-2752, 2753-2754, 2755-2756, 2757-2758, 2759-2760, 2761-2762, 2763-2764, 2765-2766, 2767-2768, 2769-2770, 2771-2772, 2773-2774, 2775-2776, 2777-2778, 2779-2780, 2781-2782, 2783-2784, 2785-2786, 2787-2788, 2789-2790, 2791-2792, 2793-2794, 2795-2796, 2797-2798, 2799-2800, 2801-2802, 2803-2804, 2805-2806, 2807-2808, 2809-2810, 2811-2812, 2813-2814, 2815-2816, 2817-2818, 2819-2820, 2821-2822, 2823-2824, 2825-2826, 2827-2828, 2829-2830, 2831-2832, 2833-2834, 2835-2836, 2837-2838, 2839-2840, 2841-2842, 2843-2844, 2845-2846, 2847-2848, 2849-2850, 2851-2852, 2853-2854, 2855-2856, 2857-2858, 2859-2860, 2861-2862, 2863-2864, 2865-2866, 2867-2868, 2869-2870, 2871-2872, 2873-2874, 2875-2876, 2877-2878, 2879-2880, 2881-2882, 2883-2884, 2885-2886, 2887-2888, 2889-2890, 2891-2892, 2893-2894, 2895-2896, 2897-2898, 2899-2900, 2901-2902, 2903-2904, 2905-2906, 2907-2908, 2909-2910, 2911-2912, 2913-2914, 2915-2916, 2917-2918, 2919-2920, 2921-2922, 2923-2924, 2925-2926, 2927-2928, 2929-2930, 2931-2932, 2933-2934, 2935-2936, 2937-2938, 2939-2940, 2941-2942, 2943-2944, 2945-2946, 2947-2948, 2949-2950, 2951-2952, 2953-2954, 2955-2956, 2957-2958, 2959-2960, 2961-2962, 2963-2964, 2965-2966, 2967-2968, 2969-2970, 2971-2972, 2973-2974, 2975-2976, 2977-2978, 2979-2980, 2981-2982, 2983-2984, 2985-2986, 2987-2988, 2989-2990, 2991-2992, 2993-2994, 2995-2996, 2997-2998, 2999-3000, 3001-3002, 3003-3004, 3005-3006, 3007-3008, 3009-3010, 3011-3012, 3013-3014, 3015-3016, 3017-3018, 3019-3020, 3021-3022, 3023-3024, 3025-3026, 3027-3028, 3029-3030, 3031-3032, 3033-3034, 3035-3036, 3037-3038, 3039-3040, 3041-3042, 3043-3044, 3045-3046, 3047-3048, 3049-3050, 3051-3052, 3053-3054, 3055-3056, 3057-3058, 3059-3060, 3061-3062, 3063-3064, 3065-3066, 3067-3068, 3069-3070, 3071-3072, 3073-3074, 3075-3076, 3077-3078, 3079-3080, 3081-3082, 3083-3084, 3085-3086, 3087-3088, 3089-3090, 3091-3092, 3093-3094, 3095-3096, 3097-3098, 3099-3100, 3101-3102, 3103-3104, 3105-3106, 3107-3108, 3109-3110, 3111-3112, 3113-3114, 3115-3116, 3117-3118, 3119-3120, 3121-3122, 3123-3124, 3125-3126, 3127-3128, 3129-3130, 3131-3132, 3133-3134, 3135-3136, 3137-3138, 3139-3140, 3141-3142, 3143-3144, 3145-3146, 3147-3148, 3149-3150, 3151-3152, 3153-3154, 3155-3156, 3157-3158, 3159-3160, 3161-3162, 3163-3164, 3165-3166, 3167-3168, 3169-3170, 3171-3172, 3173-3174, 3175-3176, 3177-3178, 3179-3180, 3181-3182, 3183-3184, 3185-3186, 3187-3188, 3189-3190, 3191-3192, 3193-3194, 3195-3196, 3197-3198, 3199-3200, 3201-3202, 3203-3204, 3205-3206, 3207-3208, 3209-3210, 3211-3212, 3213-3214, 3215-3216, 3217-3218, 3219-3220, 3221-3222, 3223-3224, 3225-3226, 3227-3228, 3229-3230, 3231-3232, 3233-3234, 3235-3236, 3237-3238, 3239-3240, 3241-3242, 3243-3244, 3245-3246, 3247-3248, 3249-3250, 3251-3252, 3253-3254, 3255-3256, 3257-3258, 3259-3260, 3261-3262, 3263-3264, 3265-3266, 3267-3268, 3269-3270, 3271-3272, 3273-3274, 3275-3276, 3277-3278, 3279-3280, 3281-3282, 3283-3284, 3285-3286, 3287-3288, 3289-3290, 3291-3292, 3293-3294, 3295-3296, 3297-3298, 3299-3300, 3301-3302, 3303-3304, 3305-3306, 3307-3308, 3309-3310, 3311-3312, 3313-3314, 3315-3316, 3317-3318, 3319-3320, 3321-3322, 3323-3324, 3325-3326, 3327-3328, 3329-3330, 3331-3332, 3333-3334, 3335-3336, 3337-3338, 3339-3340, 3341-3342, 3343-3344, 3345-3346, 3347-3348, 3349-3350, 3351-3352, 3353-3354, 3355-3356, 3357-3358, 3359-3360, 3361-3362, 3363-3364, 3365-3366, 3367-3368, 3369-3370, 3371-3372, 3373-3374, 3375-3376, 3377-3378, 3379-3380, 3381-3382, 3383-3384, 3385-3386, 3387-3388, 3389-3390, 3391-3392, 3393-3394, 3395-3396, 3397-3398, 3399-3400, 3401-3402, 3403-3404, 3405-3406, 3407-3408, 3409-3410, 3411-3412, 3413-3414, 3415-3416, 3417-3418, 3419-3420, 3421-3422, 3423-3424, 3425-3426, 3427-3428, 3429-3430, 3431-3432, 3433-3434, 3435-3436, 3437-3438, 3439-3440, 3441-3442, 3443-3444, 3445-3446, 3447-3448, 3449-3450, 3451-3452, 3453-3454, 3455-3456, 3457-3458, 3459-3460, 3461-3462, 3463-3464, 3465-3466, 3467-3468, 3469-3470, 3471-3472, 3473-3474, 3475-3476, 3477-3478, 3479-3480, 3481-3482, 3483-3484, 3485-3486, 3487-3488, 3489-3490, 3491-3492, 3493-3494, 3495-3496, 3497-3498, 3499-3500, 3501-3502, 3503-3504, 3505-3506, 3507-3508, 3509-3510, 3511-3512, 3513-3514, 3515-3516, 3517-3518, 3519-3520, 3521-3522, 3523-3524, 3525-3526, 3527-3528, 3529-3530, 3531-3532, 3533-3534, 3535-3536, 3537-3538, 3539-3540, 3541-3542, 3543-3544, 3545-3546, 3547-3548, 3549-3550, 3551-3552, 3553-3554, 3555-3556, 3557-3558, 3559-3560, 3561-3562, 3563-3564, 3565-3566, 3567-3568, 3569-3570, 3571-3572, 3573-3574, 3575-3576, 3577-3578, 3579-3580, 3581-3582, 3583-3584, 3585-3586, 3587-3588, 3589-3590, 3591-3592, 3593-3594, 3595-3596, 3597-3598, 3599-3600, 3601-3602, 3603-3604, 3605-3606, 3607-3608, 3609-3610, 3611-3612, 3613-3614, 3615-3616, 3617-3618, 3619-3620, 3621-3622, 3623-3624, 3625-3626, 3627-3628, 3629-3630, 3631-3632, 3633-3634, 3635-3636, 3637-3638, 3639-3640, 3641-3642, 3643-3644, 3645-3646, 3647-3648, 3649-3650, 3651-3652, 3653-3654, 3655-3656, 3657-3658, 3659-3660, 3661-3662, 3663-3664, 3665-3666, 3667-3668, 3669-3670, 3671-3672, 3673-3674, 3675-3676, 3677-3678, 3679-3680, 3681-3682, 3683-3684, 3685-3686, 3687-3688, 3689-3690, 3691-3692, 3693-3694, 3695-3696, 3697-3698, 3699-3700, 3701-3702, 3703-3704, 3705-3706, 3707-3708, 3709-3710, 3711-3712, 3713-3714, 3715-3716, 3717-3718, 3719-3720, 3721-3722, 3723-3724, 3725-3726, 3727-3728, 3729-3730, 3731-3732, 3733-3734, 3735-3736, 3737-3738, 3739-3740, 3741-3742, 3743-3744, 3745-3746, 3747-3748, 3749-3750, 3751-3752, 3753-3754, 3755-3756, 3757-3758, 3759-3760, 3761-3762, 3763-3764, 3765-3766, 3767-3768, 3769-3770, 3771-3772, 3773-3774, 3775-3776, 3777-3778, 3779-3780, 3781-3782, 3783-3784, 3785-3786, 3787-3788, 3789-3790, 3791-3792, 3793-3794, 3795-3796, 3797-3798, 3799-3800, 3801-3802, 3803-3804, 3805-3806, 3807-3808, 3809-3810, 3811-3812, 3813-3814, 3815-3816, 3817-3818, 3819-3820, 3821-3822, 3823-3824, 3825-3826, 3827-3828, 3829-3830, 3831-3832, 3833-3834, 3835-3836, 3837-3838, 3839-3840, 3841-3842, 3843-3844, 3845-3846, 3847-3848, 3849-3850, 3851-3852, 3853-3854, 3855-3856, 3857-3858, 3859-3860, 3861-3862, 3863-3864, 3865-3866, 3867-3868, 3869-3870, 3871-3872, 3873-3874, 3875-3876, 3877-3878, 3879-3880, 3881-3882, 3883-3884, 3885-3886, 3887-3888, 3889-3890, 3891-3892, 3893-3894, 3895-3896, 3897-3898, 3899-3900, 3901-3902, 3903-3904, 3905-3906, 3907-3908, 3909-3910, 3911-3912, 3913-3914, 3915-3916, 3917-3918, 3919-3920, 3921-3922, 3923-3924, 3925-3926, 3927-3928, 3929-3930, 3931-3932, 3933-3934, 3935-3936, 3937-3938, 3939-3940, 3941-3942, 3943-3944, 3945-3946, 3947-3948, 3949-3950, 3951-3952, 3953-3954, 3955-3956, 3957-3958, 3959-3960, 3961-3962, 3963-3964, 3965-3966, 3967-3968, 3969-3970, 3971-3972, 3973-3974, 3975-3976, 3977-3978, 3979-3980, 3981-3982, 3983-3984, 3985-3986,

STRICTLY PERSONAL

IF YOU'VE TIME TO SPARE—Bouquets to Dick Bassett's publicity going as United Air Lines for the story all the while. Let Dick tell it; nobody else could improve it.

An airline passenger rushed into a UAL San Francisco ticket office after the other day clamping a ticket in one hand and a hat in the other.

"Has the associate for the flight to New York left yet?" he demanded, all out of breath.

Confused, the ticket girl replied in her most soothing tones, "No sir. It's just outside the door."

The man rushed out and all was serene for several hours.

Then who should appear at the ticket counter but the same passenger, no longer panting, but with resignation written all over his face.

"I have put," he announced, "had a two-hour test of Christianity. What do I do now?"

FACING PASSENGER PUTS—The Delta Duper considers that Flightline Plans, 21 Worth Avenue, communication supervisor, referred that every time he had used the shingle at Delta restaurants he would suffer Delta was often concluding, not holding, or repeating about Passenger Puts. Finally, he could keep quiet no longer, and he here was very and when about Passenger Puts in Delta's endeavor for pickup passengers.

IT'S A PLANE OF MISSING PARTS—Although it has been well known to be used as to help, we finally got around to telling you that there is now a good reason why the highly tested Lockheed owned by E. Whittle Rents International Airlines, Inc., at Miami was grounded by such trouble. This, despite the fact Mr. Rents calls his firm "the finest assemblers, overhauling and purchasing agents." Rents maintains proudly that the parts were lost on transit, and he's standing, or a stick, with the story.

COMPETITION, IT'S WONDERFUL—Claude Wines, American Wines's correspondent in Providence, says that in this column he was delayed at Boston by a mechanical. It arrived late at Rhode Island State Airport to pick up Providence passengers for New York.

Just as it arrived on the ramp, Eastern's agent announced proudly over the speaker system EAL's "on time departure" for New York. The Captain heard this.

He came from Providence to New York for the ALA plane but the EAL DC-8 and passed a note back to his passenger. It read about like this:

"We are now out . . . On our left you will see our new parking the Eastern Air Lines DC-8 which left Providence 10 minutes before we did. We will arrive in New York at least five minutes before the Eastern plane. We hope you enjoy your ride and will be with us again."

SECRET, SHORT STORY—Frank Letter, our new mystery editor at our printers in Albany, also has more short stories in this column. He put together center. So we report that Nick's Airways News quotes this description on a company news report: "Sit into stick, in company officials. Break on both."

CONTRIBUTORS WANTED—This column needs your whimsical contributions. It does not write itself. Help, help! Address Associated Wires, 130 West 43rd St., New York 13, N. Y. (Contributors will be paid absolutely nothing.)

BITS OF HISTORY—R. C. Spangola, Viking first officer, comes through with some line. Says he:

"Ad. Dudley Stude (formerly old) time Redfield Old Co. pilot) if he remembers the time he landed his Wasp Stinsons at Santa Rosa airport during an air tour and, on leaving, left baggage compartment, found a stowaway running pig in a box. On the 15th day, when this box, 'This is a box like a baguette'."

"Ask Claude Messner, old timer from down Birmingham way, if he remembers the time some of them were up together one day 'playing around a little' when some passenger (sticker in the back seat crashed in this wooden box with his foot so they were making a cheap pull up. Oh, Brother!"

R.H.W.

WHAT'S NEW

Trade Literature

"Follow Me, A Guide for Selling to the United States Air Force," introduced particularly to all small concerns that have not previously established sales relations with the armed forces, available upon request to Commanding General, Air Material Command, Wright-Patterson AFB, Dayton, Ohio (Air Procurement Division). Also available "Selling to the Navy," from Superintendent of Documents, Government Printing Office, Wash. 25, D. C., price 15 cents; "Purchase Plans and Purchasing Locations," upon request to Procurement Information Center, Office of the Assistant Secretary of the Army, The Pentagon, Wash. 25, D. C.

"Lightplane Ties on Tied and Cautious," both at a series of lectures, available upon request to University of Illinois Institute of Aviation, Urbana, Ill.

"The Trade Story," a booklet as "aircraft" motor production, available from AEA-Columbia design.

"National Polaris," a booklet describing and identifying many types of wooden pallets available as request to National Pallet Corp., Glenside, Pa., Philadelphia 22, Pa.

"LOOKING AHEAD, Flights and Landings," describing products and their uses, available upon request to Carlsbad and Carlsbad Chemical Corp., 90 E. 42 St., New York 17, N. Y.

"Catalog 1949," a list of books and products published or to be published during the year by International Publishers, Inc., 215 Fourth Ave., New York 3, N. Y.

"Books for Students and Early Fall 1949," a listing of books from William Morris & Co., Inc., 435 Fourth Ave., New York 16, N. Y.

"Industrial Air Power Catalog," covering products which either are power, available upon request to Metal Specialties Co., 1114 North Kent Ave., Chicago 45, Ill.

"Bulletin 984," describing Chicago specially compounded for growth rate in testing heat systems, available upon request to The Parker Apphylene Co., 17325 Euclid Ave., Cleveland 12, Ohio.

New Books

"Principles of Wave and Sundry Applications," by A. W. Bickel, 128 pages, cloth-bound, indexed. Published by National Foreign's Institute, Deep River, Conn., price \$2.50.

ADVERTISERS INDEX

AVIATION WEEK

JUNE 27, 1949

Aircraft Division, C.M.C.	Fourth Cover
Agency—Radio Agency, Inc.	
American Aircraft Corp.	41
Agency—Hess & Co., of Florida	
Boeing Products Div. of Boeing Aircraft Corp.	Third Cover
Agency—McMurry, John & Adams, Inc.	
B. H. Aircraft Co., Inc.	41
Agency—World Market Air Co., Inc.	
Bundy Engineering Co., Inc.	8
Agency—W. M. Bell Co.	
Carroll Manufacturing Company	4
Agency—Chas. Ross Co.	
Citibank Manufacturing Company	34
Agency—Lynn Thomas Chang Co.	
Corbin Aircraft Products Inc.	25
Agency—Kathleen Wilson & Co., Inc.	
Doyle Engineering Ltd.	19
Agency—Hess, Tim Ltd.	
Edison, Inc., Thomas A.	94
Agency—The Schuler-Hayes Co.	
Evans, Inc.	5
Agency—E. J. Williams Co.	
Franklin Evans & Joseph Co., Inc.	5
Agency—Cord & Fisher, Inc.	
General Corporation, The	10
Agency—J. Walter Thompson Co.	
Goodrich Tire & Rubber Co., Inc., Ford Cover	
Agency—Radio Agency, Inc.	
Loew Engineering Co., The	4
Messerschmitt, The	42
Agency—Liberty & Clark, Inc.	
Messerschmitt-Hershey Airplane Co.	Second Cover
Agency—Adams, Lewis & Associates	
New Direction Co., C.M.C.	5
Agency—W. M. Bell Co.	
Rohr Corp. of America	15
Agency—Walter Thompson Co.	
Seattle Magnetics Div. of Boeing Aircraft Corp.	12
Agency—McMurry, John & Adams, Inc.	
Scrubbing Section	46
Smith-Morris Company	10
Smith-Tyler Corp.	10
Agency—Smith Incorporated	
Sperry Gyroscope Co.	6
Agency—Charles Deane Smith Co., Inc.	
Standard Oil Co. of California	10
Agency—Baker, Rains, Douglas & Co., Inc.	
Thompson, Dr. The	37
Agency—Radio Air Co.	
Western Air Lines	49
Agency—W.M. Bell Co.	
Western Co. Ltd. W. M. Bell Co.	18
Agency—W.M. Bell Co.	

SEARCHED SECTION

(Classified Advertising)

EMPLOYMENT	
Executive Vacancies	46
Personnel Vacancies	46
Recruitment Vacancies	46
EDUCATIONAL	
Scholarships	46
MINIATURE OPPORTUNITIES	
Others	46
FLYING OPPORTUNITIES	
Flight Instructor	46

AVIATION WEEK, June 27, 1949



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Republic F-84 Thunderjet
North American F-101 Fury
Northrop YB-49 Flying Wing
Grumman F9F-8 Panther



J33-A-23 turbo-jet

Allison

Builder of axial and centrifugal
flow turbine engines

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